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ABSTRACT

The report assesses activities and programs of the Calgary Learning Centre, a research-demonstration approach serving learning disabled students in Calgary, Canada. Four major areas of concern are addressed: (1) diagnostic and assessment tests and/or other techniques, (2) remedial learning programs, (3) other associated programs including parent groups and social skills groups, and (4) centre organization. Each of the centre's major thrusts are examined in separate chapters covering the following areas (sample subtopics in parentheses): the research program (studies of the instrumental enrichment parent training program, cognitive behavior modification and listening skills, auditory discrimination in depth, mathematics skills group, communications skills group, orienteering, and adolescent wilderness challenge program); the service program (evaluation of five major components--referral, initial interview, assessment, individual and group treatment programs, and followup); and public and professional education (learning disability resource library, and professional education credit and noncredit courses). Results of a questionnaire on the Learning Centre Model, including general agreement on the insufficient funding level, are cited. A concluding section focuses on three additional aspects: the multimandate of teaching, research-demonstration, and service; the multidisciplinary nature of the Centre, and the consortium structure. (CL)

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The Evaluation of The Learning Centre

Richard Conte, Marilyn Samuels and Harry Zirk
The Learning Centre
Calgary, Alberta

Funding Provided by Planning Services Branch

Alberta Education

December, 1983

ABSTRACT

The Learning Centre is concerned with improving service to learning disabled persons by means of an integrated program of research-demonstration, direct service to clients, and public and professional education. The purpose of this report is to assess the activities and programs which have been developed in each of these areas.

First, the major goal of the research program was to develop and evaluate assessment and treatment programs for learning disabled persons. Four formal research projects and twelve short term pilot projects have been developed. These studies encompass a broad range of assessment and treatment approaches including remedial academic programs in the areas of reading, spelling and mathematics; cognitive modification programs such as Instrumental Enrichment and Cognitive Behaviour Modification; and social and communication skills programs. Evaluation data presented in the report indicate that many of these programs produced substantial treatment gains. Two of these pilot projects have been developed into controlled research studies which are currently underway. In the immediate future the other short term programs which showed promise should be proposed as controlled studies. Attempts should also be made to demonstrate the effectiveness of these programs

in a school setting.

With respect to the service program, the major goal was to provide effective treatment for clients. This goal entailed the development of an efficient system of accountability so that parents, teachers, and clients could participate in the development and evaluation of treatment programs. For the most part this aspect of the evaluation made use of questionnaire and interview responses obtained from parents and teachers of clients. With regard to the utility and efficacy of assessment and treatment programs, the responses were uniformly positive. However, there were indications that the system of accountability needed revision. Some parents and teachers did not feel sufficiently involved in implementing and evaluating treatment programs. Also, problems were noted in the way treatment program recommendations were written; i.e., many of them did not include clearly stated remedial goals. In order to have an efficient system of accountability it is especially important for the parties involved in the treatment process (parents, teachers, clients, and clinicians) to agree with and understand the goals of the remedial program, and the methods used to implement that program. It was suggested that the Learning Centre staff review the procedures used to communicate assessment information and the methods used to arrive at remedial goals.

The objective of the public and professional education program was to increase public awareness and to communicate specific assessment and remedial techniques to professionals who work with learning disabled persons. Learning Centre staff were responsible for initiating a practicum course in Learning Disabilities at the University of Calgary. Also, Centre staff were largely responsible for introducing new assessment and treatment approaches(such as Feuerstein's Instrumental Enrichment and Learning Potential Assessment Device) to the Calgary area. The various courses, workshops, and inservice presentations were evaluated by means of questionnaires completed by participants. Their responses indicated that they were particularly pleased with the knowledge and commitment of the Learning Centre staff who served as instructors. Also, participants generally perceived the presentations as being relevant to their work. The only problems noted concerned the balance of theory and practice in the presentations and the quality of the audio-visual materials. In the next stage of development of the public and professional education program attempts should be made to integrate the program with the other areas of the Learning Centre mandate, and to gather information on the needs of local professionals for inservice.

Finally, the evaluation considered the characteristics of the model underlying the activities of the Learning Centre, such as the viability of the goals, and the role of the consortium of agencies which oversees the direction of the Centre. The primary data source was a questionnaire completed by members of the Board of Directors. Their responses indicated nearly universal agreement that the goals of the Learning Centre were still relevant, even though there were some differences of opinion regarding the function of the Learning Centre which was considered most vital. Also, reactions regarding the role and efficacy of the consortium structure were very positive. Most members indicated that this type of structure presented great opportunities for cooperative action among agencies concerned with the welfare of learning disabled persons.

The major conclusions of the study were that the Learning Centre has made a substantial contribution in each of the three major areas of the mandate. A number of treatment programs have been developed and evaluated, a credible service program has been implemented, and a wide- ranging public and professional education program has been put into action. There is still considerable refinement and follow-through needed in each of the areas of the mandate; i.e., the preliminary research investigations need to be repeated with larger samples, the procedures used to communicate assessment and treatment information to parents and teachers needs review, and the public and professional education program needs to be more closely integrated with other areas of the mandate.

ACKNOWLEDGEMENTS

This research has been overseen by the Learning Centre Research and Evaluation Steering Committee. In regular meetings over the past three years, the members of the Committee have guided this project with their encouragement, constructive criticism and suggestions. The authors thank the members of the Committee for their valuable time and effort, and look forward to working with them in the future.

The Committee members and their affiliations are listed below.

Dr. Roy Brown: Calgary Society for Students with Learning Difficulties (1982-83)

Dr. Guy Doll: Calgary Catholic Board of Education (1980-83)

Ms. Pat Gillespie: Calgary Board of Education (1981-82)

Dr. Neil Hutton: Calgary Society for Students with Learning Difficulties (1980-82)

Ms. Jean van der Lee: Calgary Board of Education (1980-81)

Dr. Harry Sherk: Planning Services Branch, Alberta Education (1980-83)

Ms. Stephanie Wright: Calgary Board of Education (1982-83)

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THE EVALUATION OF THE LEARNING CENTRE

CHAPTER I: INTRODUCTION

A. The Purpose of the Evaluation

This document is a report of the evaluation of The Learning Centre, the research and demonstration centre of the Calgary Society for Students with Learning Difficulties (CSSLD). The purpose of this report is to describe the activities of the Learning Centre during its initial three years of operation and to assess the effectiveness of the programs which have been developed. This evaluation was initiated by Alberta Education and as specified in the contract with them, there were to be four major areas of concern: the effectiveness of

1. diagnostic and assessment tests and/or other techniques,
2. remedial learning programs,
3. other associated programs or concerns including parent groups and social skills groups,
4. organization of The Learning Centre.

B. The Mandate of the Learning Centre

The Learning Centre is concerned with improving service to learning disabled persons by means of an integrated program of research, demonstration, and teaching. Thus, the major thrust of the work at the Centre is to contribute to the development of new approaches to assessment and treatment of learning disabilities, to critically evaluate the effectiveness of these approaches, and to disseminate this information to other professionals and the public generally. It is stressed that these activities should be carried out in a highly integrated manner; i.e., there should be continuity between the knowledge generated in the research program, the experience gained in clinical practice and the content of the public and professional education program. Thus, even though the Learning Centre provides direct service to clients by providing a diagnostic assessment and treatment service, it is the intent that these activities should take place in a larger context of research and demonstration. In the course of providing service to clients, knowledge will be gained, data will be collected, and this information will be communicated to other professionals who work with the learning disabled.

C. The Structure of the Evaluation

Even though the various facets of the Learning Centre mandate are meant to function as an integrated whole, each has been treated as a separate entity in this report. Thus, Chapters 2 thru 4 each deal with a major aspect of the Learning Centre mandate: research, service, and public and professional education. Chapter 5 considers the more general aspects of the Learning Centre model and the consortium structure of the Board of

Directors. Each of these chapters includes an introduction, method section, data presentation, and discussion. Finally, Chapter 6 is a discussion of more general issues which involve more than one aspect of the mandate. In reading this report it should be kept in mind that it covers the initial three year period of the Learning Centre's operation. This period has been regarded primarily as a time to develop a body of programs which could form the subject matter of research projects. In this sense this is a formative rather than a summative evaluation (Scriven, 1967).

D. Implementation of the Evaluation

In the contractual agreement made with Alberta Education, it was specified that there would be dual responsibility for this evaluation: the internal staff of the Learning Centre, and an external consultant. Both the internal and external evaluators were responsible for the design of the evaluation. For the purpose of formulating this final report, the internal and external evaluators worked independently. Part I of the report is the work of internal staff of the Learning Centre. Part II is the external evaluator's critical review of the internal report. The external evaluator was asked to focus on three aspects of the report:

1. the methods of data analysis,
2. the interpretation of the data,
3. the recommendations made on the basis of the data.

E. Description and Goals of the Calgary Society for Students with Learning Difficulties, Learning Centre

In this section a brief history and the goals of the Society will be presented. Three sources were used to ascertain this information: The Calgary Society for Students with Learning Difficulties Proposal (1980) made to the Alberta Government, The Bylaws of the Society, and an information brochure which is distributed to the public.

1. A Brief History of the Learning Centre

The Society was initiated in 1975 by members of the Calgary Association for Children with Learning Disabilities (CACLD). Their initial goal was to establish an agency which would serve the learning disabled population of Southern Alberta. As the concept of this new agency developed, support was obtained from a number of agencies which were concerned with the needs of the learning disabled population. This led to the establishment in 1979 of a consortium of agencies registered as the Calgary Society for Students with Learning Difficulties (CSSLD). The participating agencies in the CSSLD are: Alberta Children's Hospital, Alberta Teachers Association, CACLD, Calgary Board of Education, Calgary Catholic Board of Education, Calgary Board of Health, Kinsmen Club of Calgary, and the University of Calgary. The functioning agency of the CSSLD, called The Learning Centre, opened officially in December, 1979.

According to the Bylaws of the CSSLD, each group is entitled to nominate bi-annually one person to the Board of Directors. Exceptions to this rule are the CACLD and the University of Calgary, each of which is permitted two members. In addition to these representatives, five members of the Board of Directors are elected at each Annual Meeting. Generally, these members are the parents of clients of the Learning Centre, or concerned persons from the community.

2. The Objectives of the Learning Centre

The Learning Centre developed out of four major concerns, which are summarized in the following four points. Similar concerns were recognized in the University of Alberta Task Force Report on Learning Disabilities (1979).

a. Services available for learning disabled persons were not adequate,

b. The complexity of most learning disabilities is such that a multidisiplinary approach is needed.

c. One essential component to the improvement of services is the generation and dissemination of knowledge,

d. Many of the professionals who deal with learning disabled persons on a daily basis, such as physicians, nurses, social workers, probation officers, have no formal training in learning disabilities.

The Learning Centre of the CSSLD opened in December, 1979, and attempted to address these concerns through the implementation of the following objectives:

a. To attempt to evaluate the whole person, socially, medically, educationally, psychologically, and to develop an integrated, individualized treatment program using a multidisciplinary approach.

b. To provide a means whereby extensive research on assessment and treatment of the learning disabled can be implemented and evaluated.

c. To develop programs that can be used in the regular school system, as well as other centres.

d. To provide training for professionals working with learning disabled people.

e. To maintain community involvement and support through public and parent education, as well as through volunteer support programs.

In order to implement this program it was necessary to employ a staff of researchers and clinicians representing a wide range of disciplines. The list of staff is given in Appendix I.

In the next three chapters the components of the Learning Centre program which have been developed to implement these goals will be described. For the purpose of this discussion the Learning Centre program will be described in terms of three broad areas: research, service, and public and professional education.

CHAPTER II: THE RESEARCH PROGRAM

The purpose of research at the Learning Centre is:

1. To contribute to the understanding of the causes of learning disabilities,
2. To evaluate treatment and assessment approaches used in providing service to learning disabled persons.

Both goals of the research program are closely related, assuming that as the understanding of the causes of learning disabilities increases, more effective treatment and diagnostic techniques will be developed. As diagnostic and treatment approaches are refined, they will promote our understanding of the causes of learning disabilities.

Typically, research at the Learning Centre is conducted in two stages: a program development or pilot stage and a formal stage. The purpose of the pilot stage is to refine the methods used in implementing the treatment and to develop a set of appropriate evaluation measures. If pilot testing suggests that a program has promise, then it will be proposed as a formal project, and application will be made for external funding.

A. Formal Research Projects

The research program at the Learning Centre was initiated with the support of research funds from Planning Services Branch, Alberta Education. The research activities of the Centre have been overseen by a

Steering Committee which was initiated by Planning Services Branch. This Committee has representatives from Planning Services Branch, The Calgary Board of Education, the Calgary Catholic Board of Education and the Calgary Society for Students with Learning Difficulties.

In the first three years of the Learning Centre's existence there have been four formal research projects undertaken:

1. "Cognitive Correlates of Reading and Spelling Patterns: An Investigation of Boder's Method of Subtyping Disabled Readers".

   Investigators: Richard Conte, Marilyn Samuels and Harry Zirk

   Funding Agency: Planning Services Branch, Alberta Education

   Final Report Due: December, 1983

   In the Boder subtyping methodology it is assumed that there are two basic types of cognitive deficit related to retarded reading performance (auditory-linguistic, and visual-spatial), and that these types can be distinguished by means of analysis of several reading and spelling measures. This study was undertaken because the Boder subtyping methodology is one which can be readily utilized in the clinical setting. However, there is insufficient documentation to include it as part of a clinical assessment battery. Thus, the purpose of the Learning Centre study was to investigate the validity of the inferences derived from the test.

2. "Presentation Rate Effects during Paired Associate Learning as a Method of Diagnosing Attention Disorders"

   Investigators: Richard Conte, Harry Zirk and Marilyn Samuels

Funding Agency: Planning Services Branch, Alberta Education

Final Report Due: April, 1984

The purpose of this study is to improve upon existing methods of measuring attention span. According to information obtained at referral, approximately two-thirds of the children seen at the Learning Centre show signs of attention disorder. Many of these children are not hyperactive, so that observational methods are often not particularly effective. It became clear that for these children a more sensitive method of measuring attention span was needed both to diagnose attentional difficulties, and to assess the effects of treatment programs on attention.

In this study the measure of attention span is derived from the amount learned under different study time conditions. It is assumed that children with short attention spans will learn more efficiently when brief study periods are used, because longer study times will exceed their attention span.

3. "Instrumental Enrichment with Low Achieving Adolescents"

Investigators: Marilyn Samuels, Audrey Roadhouse and Richard Conte

Funding Agency: Planning Services Branch, Alberta Education

Final Report Due: September, 1984

The purpose of this study was to evaluate the impact of Instrumental Enrichment (I.E.) on academic performance, thinking and reasoning skills, classroom behaviour, and attitudes toward education of low achieving adolescents. I.E. is a method of treatment based on Feuerstein's theory of cognitive modifiability. It is a two year program in which students work at structured paper and pencil problem solving activities. The tasks are varied so that the utilization of a number of different thinking skills or strategies is required. The teacher of the program attempts to identify patterns of cognitive deficiency in each student, and helps them cope more effectively with their learning difficulties. This program was taught by Audrey Roadhouse, a

Learning Centre teacher seconded from the Calgary Board of Education. This study was undertaken with the support and encouragement of Van Horne Secondary School after several of their students participated in a pilot I.E. project at the Learning Centre.

4. The Method of Repeated Readings in the Treatment of Severely Disabled Readers.

   Investigators: Richard Conte, Rita Humphreys, and Deborah Alexander

   Funding Agency: Planning Services Branch, Alberta Education

   Final Report Due: October, 1984

   This study is being conducted in collaboration with the Foothills School Division. Its purpose is to evaluate the effectiveness of this method of reading instruction on students' attitudes toward reading and reading achievement. Learning Centre staff have used this method of instruction for several years in Learning Centre programs (see Discussion of the Repeated Readings in the next section on pilot projects). In this study the program is being implemented in regular school classrooms and resource rooms.

B. Pilot Projects

The development of treatment programs has been the focus of much activity at the Learning Centre in the initial three years of functioning. In this section, brief descriptions of each of the pilot projects will be presented. More complete descriptions may be obtained by contacting the Learning Centre.

The pilot projects described in this section represent the initial attempts of Learning Centre staff to develop effective remedial programs. There were two general goals of the pilot projects:

1. To use a wide range of approaches in order to determine which would be most effective with this population of clients,
2. To implement those programs which were found to be effective during pilot testing, in the regular school setting.

With respect to the first goal, it will be evident in the descriptions which follow that two general types of programs have been conducted: those which focus on teaching specific academic skills (the Method of Repeated Readings, the Mathematics Skills Group), and those which attempt to teach general problem solving strategies or thinking skills (Instrumental Enrichment, Orienteering). In addition, the subject matter of the groups varies considerably; i.e, (reading, spelling, communication skills). In terms of the second goal (i.e., conducting programs in the regular school setting) two of the programs described below (Instrumental Enrichment and the Method of Repeated Readings) have been funded and are currently being implemented in regular school systems.

1. The Method of Repeated Readings

Ms. D. Alexander, a clinical psychologist seconded to the Learning Centre by Alberta Children's Hospital, was responsible for the development of the treatment procedures used in this program, although the entire Learning Centre staff has used and contributed to the development of the program.

Repeated Readings is a method of instruction in which the student repeatedly listens to tape recorded books and stories, learns to track words along with the tape, reads along with the tape, and eventually learns to read the material without the tape. Chomsky (1978) reported success with the program with moderately disabled readers; i.e., those with good basic skills, but who never learned to read fluently. The thrust of the Learning Centre work with this program has been to attempt to modify the procedures so that they could be used with severely disabled readers. In the pilot work, the program has been implemented in one-to-one treatment programs only.

Subjects: This program has been implemented with 6 boys, aged 8 to 12 years, who were on the average 3 years delayed in reading.

Procedure: This program was conducted in the context of one-to-one treatment programs administered by four different Learning Centre staff. The duration of the program was left to the discretion of the individual clinician: It varied from 20-60 weeks. In general, there were two hours of treatment per week given in two one hour sessions. Also, for each child, phonics instruction (such as Glass Analysis) was given in conjunction with the repeated readings program.

Results and Discussion: Analysis of the Total Reading Scores from the Woodcock Reading Mastery Test indicated that there was on the average 1.13 years of gain for 1.22 years between pre and post tests. Reports from the clinicians who administered the program indicated that it frequently increased the motivation of children to read. These results were considered sufficiently promising that the Learning Centre has undertaken a formal investigation of the Repeated Readings method in a collaborative project with the Foothills School Division.

2. Instrumental Enrichment Parent Training Program

This group was developed by Ms. D. Alexander, a Learning Centre clinical psychologist seconded from Alberta Children's Hospital, and by Ms. A. Roadhouse, a Learning Centre teacher seconded from the Calgary Board of Education. They also received assistance from Learning Centre language pathologist, Mr. G. Johnson, who developed and administered the language assessment battery used to evaluate this program.

Instrumental Enrichment (I.E.) is a program of cognitive modifiability developed by Feuerstein (1980) to teach thinking skills to culturally deprived adolescents. The I.E. program consists of a series of problem solving exercises, which require the student to utilize a wide range of cognitive functions, such as analogical reasoning, organizational strategies (categorization), and orientation in space. As the student works at these exercises, the teacher attempts to identify patterns of cognitive deficiency and intervenes to help the student cope more effectively with the difficulties encountered.

The I.E. parent training group had two goals:

a. To adapt the procedures of I.E. to learning disabled students

b. To determine if parents could be effective teachers of I.E. for their own children.

Subjects: Five severely disabled students (3 females and 2 males) with one parent per child participated in this program. The average age of the participant was 11 years 11 months. Three of the students had been diagnosed as learning disabled, and two met the criteria as educationally mentally handicapped. According to the Woodcock-Johnson Psychoeducational Battery, the participants were nearly three years below grade level in both perceptual speed and in reasoning ability.

Procedure: Parents met once per week with two Learning Centre staff for training in the use of I.E. instruments, and to receive counselling to help them deal with any behavioural management problems which may have arisen. Parents and students were expected to spend at least 1/2 hour per day with their child working with the I.E. instruments.

Results and Discussion: Analysis of pre-post test scores indicated that for the entire group, there was an increase of 5.1 grade levels in reasoning ability, but no change in perceptual speed. Also, all five children made gains of at least one year in the Auditory Association Subtest of the Illinois Test of Psycholinguistic Ability, which is a test of verbal analogical reasoning.

To summarize, these findings were considered very significant not only because of the large magnitude of the changes, but also because they appeared to be selective; i.e., there were large gains for reasoning measures, but not for measures of perceptual speed.

3. Instrumental Enrichment for Pre-Adolescents

This program was developed and conducted by Learning Centre occupational therapist, Ms. T. Malloy-Miller. Mr. G. Johnson, Learning Centre language pathologist developed and administered the language assessment battery.

This program had three general goals:

a. To determine if the I.E. program could be implemented in a group of children who were somewhat younger than those who typically receive this form of treatment

b. To determine if the I.E. program could be effectively implemented in a setting away from each student's school.

c. To determine the effects of I.E. instruction on expressive and receptive language ability.

Subjects: Two boys and two girls (average age 10 years 8 months) participated in this program. All the children had been assessed at the Learning Centre and were found to have WISC-R IQ's in the normal range, but they were not achieving up to grade level. Three of the students were in a regular grade five school placement, and one was in a special learning disability class.

Procedure: This group met three times per week in hourly sessions at the Learning Centre from early October until late May. The teacher who taught the program also made bi-weekly visits to each child's school classroom to transfer the skills learned in I.E. A battery of receptive and expressive language assessment instruments were administered before and after the program.

Results and Discussion: The results indicated strong gains in the ability to use words in sentences. At the start of the program the students were two years below grade level on this task. At post-test they were at grade level. The smallest gain made by any of the students was 2 grade levels. Strong gains were also noted in the auditory reception and auditory association subtests of the Illinois Test of Psycholinguistic Ability.

In the absence of a control group it is not possible to definitely define the positive benefits of this program. However, it does appear that substantial gains can be made in language with this program. It is significant that the language tests used in testing were not closely related to any of the I.E. training exercises. Thus, it is unlikely that the gains were due to the effects of direct training.

4. Cognitive Behaviour Modification and Listening Skills

This study was conducted as part of the requirements for a Master's Thesis by Ms. A. Parker, who was a graduate student in the Department of Educational Psychology, University of Calgary. The purpose of this project was to determine if Cognitive Behaviour Modification (CBM) could significantly enhance listening skills.

Subjects: Ten children who satisfied the following criteria were accepted for this study: full scale intelligence in the normal range, at least two years below age level in one or more academic subjects, and deficient listening skills as indicated by classroom teacher report.

Procedure: The subjects were randomly assigned to either a listening skills only group, or a listening skills plus CBM group. The listening skills taught to both groups included: selecting facts and details, selecting main ideas, and summarizing. In addition, subjects in both groups performed orienteering exercises. The CBM group received training in the following areas: stopping to define a problem, developing a plan, checking progress, developing a second plan if the first was not successful, and self-reinforcement. Each group was run twice per week for 10 weeks in two hour sessions.

Results: In general, there was a great deal of consistency in the pattern of results across the set of pre-post measures. For the most part there were significant improvements in the scores of both groups, but no advantage for the group which received CBM. This occurred for measures of reading comprehension, receptive language, auditory memory and for several measures of classroom behaviour (interference, off-task behaviours, and positive behaviours).

These findings suggest that in the context of a short term treatment program, significant gains in listening skills may be made by giving training in listening skills and orienteering. Additional training with CBM did not produce greater benefit. This should not be taken as a negative finding as far as CBM is concerned. Instead, it may be that the effects of the other treatments masked the effects of CBM. Also, in the absence of a no-treatment control group it is not possible to conclude that the program taught was instrumental in producing the gains in pre-post scores.

Normal developmental changes may have contributed to the effects which were obtained.

5. Cognitive Behaviour Modification Case Studies

Ms. R. Humphreys, a language pathologist at the Learning Centre was responsible for the two case studies which follow. They involve quite different children, and will therefore be presented separately.

(a). CBM with an Attention Disordered Children with Average Non-verbal and Below Average Verbal Skills.

Initially, CBM was implemented with T.F. as part of a program to enhance reading comprehension. He was taught to use oral self-instructional commands with a number of reading-related activities including the Specific Skill Series, Reading for Concepts, and the Bell and Howell phonics program. During the initial 8 months of the program, there was a gain of .8 year in reading ability, but T.F. still had a great deal of difficulty mastering the oral self-instructional commands. Also, impulsivity continued to be a significant problem at school. It was hypothesized that T.F. may have had difficulty mastering the commands because reading was a difficult subject area for him. In the next phase of treatment, he was given problems which posed less difficulty. In this case perceptual problem solving tasks were presented, and it was found that he could use the CBM commands quite successfully. However, when attempts were made to re-introduce reading or math problems, he again experienced difficulty using verbal commands.

In the final phase of treatment, it was hypothesized that T.F. may have difficulty handling multiple sources of verbal information. Thus, when he was working on a verbal problem, he could not use verbal self-instructional commands, but he could do so when working on perceptual materials. Perhaps, he could use self-instructional commands on verbal material if it was presented non-verbally. This approach was implemented by teaching him hand gestures adapted from American Sign Language. Preliminary findings indicated that T.F. could use these gestural signs more efficiently than verbal commands. At the time of this writing there was no pre-post data. Nevertheless, on the strength of the observational data, a grant proposal has been submitted to investigate the effectiveness of gestural training on attention disordered children with language delay. This proposal includes a screening procedure for determining whether a child is more amenable to gestural or oral self-instructional commands.

(b). Cognitive Behaviour Modification in a Low Functioning, Attention-Disordered Child.

At 11 years 8 months, A.B. was referred to the

Learning Centre for problems of impulsivity and short attention span. A WISC-R revealed general low functioning; i.e., verbal 81, performance 82, full scale 80. The Woodcock Reading Mastery Test indicated a Total Reading Score of grade 4.6. On the Test of Written Spelling she performed at a grade 2.7.

Procedure: Even though the WISC-R results indicated below average level of intellectual functioning, the Learning Centre clinician who performed the assessment believed that the child was functioning at a higher level. A CBM program was implemented to reduce impulsivity. A.B. was seen over a two month period for two hours per week by a University of Calgary practicum student who worked under the direction of Ms. Humphreys.

Results and Discussion: Over the two month treatment period, it was found that A.B. could easily master the self-verbalization instructions, and that she could apply them to her reading and spelling lessons. At the end of two months her score on the Test of Written Spelling had increased by .6 grade level.

There is inadequate documentation to definitely establish that CBM reduced this child's level of impulsivity. It would be more convincing if there were more extensive classroom observations and perhaps some objective measures of impulsivity. It is also possible that she derived considerable benefit just from the attention received during treatment. What is most impressive, however, is that she was able to master the techniques of CBM with relative ease. The contrast between this finding and that reported in the previous case study is very striking, especially since T.F's verbal and performance scores were higher than A.B.'s. The apparent success of this program suggests that the low I.Q. score may have been due to this child's level of impulsivity. It would be of interest to re-administer the WISC-R, now that she has acquired the CBM strategies to see if the score would be increased.

6. Auditory Discrimination in Depth

This program was implemented by Ms. S. Pace, a Learning Centre teacher seconded from the Calgary Board of Education. Auditory Discrimination in Depth (ADD) is a multisensory program which attempts to develop auditory-perceptual skills basic to reading and writing. One of the chief characteristics of this approach is that it attempts to build associations between the auditory elements of speech sounds and the physical sensations of making the sound. The purpose of this study was to investigate the effectiveness of this program in remediating spelling difficulties.

Subjects: Four students (three boys and one girl), average age 12 years 2 months, participated in this group. The girl left the program before it was completed. The three boys who had been diagnosed as learning disabled, were in grades 6-7. At the start of the program they were on average three years below grade level in spelling.

Procedure: This group met twice per week for a period of 10 weeks in one hour sessions. The treatment was administered by Ms. Pace and by a group of four Strathcona High School students who were under her direction.

Results and Discussion: Two of the three students in the group showed gains in spelling of nearly 1 year, whereas the third student showed a decline of .2 age-equivalents. The teacher who administered the test reported that in her opinion the child who failed to show a treatment gain, deliberately did poorly on the post-test.

Conclusions to be drawn regarding this program are limited because of the small sample size and because the teacher who conducted the program also did the pre-post testing. Future plans for this program include a replication with a larger group.

7. Mathematics Skills Group

This program was developed by Ms. M. Hall, a teacher seconded to the Learning Centre by the Calgary Catholic Board of Education. The purpose of the program was to serve the individualized needs of four students who had math difficulties. A prescriptive math teaching approach was used. The basic approach taken with this method is to use criterion referenced tests to pinpoint skill deficits and then to teach directly to the deficit areas. It may be contrasted with other approaches which attempt to teach more general strategies applicable to a wide range of situations.

Subjects: Four adolescent males who ranged in age from 12 years 4 months to 15 years 3 months were selected for participation on the basis of average general intelligence and a history of math problems. They were on average 3 years below grade level at the start of the program.

Procedure: The program was conducted from January-March, 1982, and the students received three hours of intervention per week. Evaluation instruments included the Stanford Diagnostic Mathematics Test, and a teacher rating scale developed at the Learning Centre designed to assess change in math skills and in classroom behaviour.

Results and Discussion: On the number system and numeration subtest of the Stanford Diagnostic Test, the students gained nearly two grade levels. The smallest gain was 1.2 grades; the largest was 2.5 grades. Similar gains were made on the Computations subtest. The teacher ratings indicated that there were positive changes both for math skills and behaviour, but the gains were greatest for the former.

The results of this study suggested that a prescriptive math approach could lead to substantial gains after just 10 weeks of instruction. The possible limitation of this program is that it focussed on specific skill deficits, but did not attempt to teach more general strategies. Thus, the range of application of the skills acquired might be very limited.

The next step in math programming at the Learning Centre will be to contrast two approaches to math remediation. Ms. Hall and Ms. S.Stewert, a Learning Centre teacher seconded from the Calgary Board of Education are currently developing a study in which the prescriptive approach and a math strategies approach will be contrasted in two groups of children.

8. A Communication Skills Program for Learning Disabled Adolescents

The program was developed and implemented by Learning Centre language pathologist, Mr. G. Johnson and by Ms. M. Hall. The purpose of this program was to focus on pragmatic deficits in learning disabled adolescents. The Let's Talk program developed by E.

Wiig and colleagues at Boston University was used. It involves group training of 33 selected speech acts and speech act sequences. This program was conducted because there was a lack of systematic evaluation of the program, and because it appeared to suit the needs of a number of adolescents who were awaiting service.

Subjects: Ten students (8 boys and 2 girls) aged 13-15 were selected on the basis of maturity level and a history of difficulties either in initiating interpersonal interactions or organizing information for use in oral or written form.

Procedure: This group met twice per week for 10 weeks in hour long sessions. The program focussed on three activities: discussing behaviours which lead to successful communication, role playing these behaviours, and then transferring these skills to out-of-group activities.

Results and Discussion: The results indicated that there were substantial gains of 1 year for receptive vocabulary, but no group change for speech act formulation ability or reasoning skills. There was also some indication that students with good pre-treatment language skill benefitted most from the program.

These data must be interpreted cautiously because of the inherent difficulty in measuring communication skills. The program is still in its infancy, and a number of problems need consideration. Better methods of selecting students who are appropriate for this group are needed. Also, in a group of this kind it is especially important to develop a set of relevant "real world" activities that the students can use to gain a sense of pay-off for developing more effective communcation skills. In the next step in the development of this program, it will be conducted as part of a regular school curriculum in a junior high school with learning disabled students.

9. Orienteering

This program was developed by Learning Centre teacher Ms. E. Dever and by Ms. M. Hall, a Learning Centre teacher seconded from the Calgary Catholic Board of Education. A report of this program appeared in *Teaching Atypical Students in Alberta* volume *12*, no. 1, 1983.

Orienteering is a recreational activity in which the participants must find their way from a starting point to an end point or goal. Generally, the activity takes place outdoors, and requires the participants to read maps, translate map lines to road distance, and move quickly through many different types of terrain. Orienteering has been used at the Learning Centre to teach learning strategies (e.g., text book usage, time management, questioning, listening comprehension, and use of visual aids) to adolescents and pre-adolescents. This program has been run for two years as a summer program.

Subjects: Over the two year period, 22 sixth grade students have participated in this program. All participants were of normal intelligence and to be at least two years below grade level in one or more core academic area.

Procedure: The program was conducted week-day mornings during the month of July. The first half of the morning was spent on paper and pencil tasks designed to prepare the students for the orienteering activity which took place in the second half of the morning. The program was evaluated in terms of measures of listening skills, text book usage, use of visual aids, and questioning skills.

Results and Discussion: For 1982, pre-post comparisons with the Wilcoxon Signed Ranks Test indicated that there were significant gains for visual aids ($p<.011$), listening comprehension ($p<.025$) and questioning skills ($p<.01$). Differences for textbook usage were non-significant. For 1983, pre-post differences were significant for visual aids ($p<.01$) and textbook use ($p<.01$). The results for listening comprehension and questioning were not significant. Questionnaire data obtained post-program indicated that parents and students found the program to be both beneficial and recreational.

While these data suggest that significant gains can be made in some learning strategies after short term intervention with orienteering, it is not known if the gains are any larger than those obtained with other methods of instruction, or with no instruction at all. However, with respect to the last point, given the short term nature of the intervention, it seems unlikely that a group of students who were not receiving instruction would have made comparable gains.

The next stage in the development of the orienteering program will be to design a carefully controlled study in which two forms of treatment will be contrasted. In one group learning strategies will be taught using academic materials only. Another group will receive instruction using both academic materials and orienteering. This study should provide some indication of the potential use of orienteering in the regular school curriculum.

10. The Family and Treatment

The treatment program for families has been developed by Deborah Alexander, a Learning Centre clinical psychologist seconded from Alberta Children's Hospital, and by Learning Centre social worker, Shari Shaw.

The Learning Centre program for families is based on the notion that the learning disabled child/adolescent is a whole person, and as such, treatment must go beyond academic and cognitive functioning to include social and emotional concerns. The family plays an important role in each of these realms. Not only have the family members been involved with the child/adolescent over the span of his/her life, so that they provide a developmental perspective, but they must also play an important role in treatment planning.

Parental involvement in Learning Centre programs has taken three different forms. First, at the time of assessment, the parents may be involved in a series of three evening meetings. The focus at this time is to present information on learning disabilities and the Learning Centre, and to respnd to parents' questions.

Second, parents of children attending Learning Centre programs frequently attend parent skills groups. Eight parenting skills groups have been undertaken. They have consisted of 4-8 sessions with 8-10 parents per group. Discussions focus on parenting skills in the areas of behaviour management, motivation, and changes in the home environment which may influence the outcome of treatment.

The third type of intervention takes place where family systems are hindering the child's progress in coping with a learning difficulty. In these cases family therapy is offered as an integral part of the treatment.

The form of treatment offered is the Milan family systems model. The Learning Centre work in this area has benefitted greatly from regular consultation and supervision from staff of the Family Therapy program at Foothills Ambulatory Care Centre. The focus of the Learning Centre family therapy program has been to adapt the Milan model to the particular characteristics and needs of the learning disabled population. In the past three years 15 families have participated. The duration of therapy has ranged from 2-10 sessions per family.

To summarize, the Learning Centre staff have developed methods of integrating the family into the treatment process. A format for parent groups has been developed, and some headway has been made in adapting the Milan method of Family Therapy to the Learning disabled population. The next step in the development of the program for Families will be to develop a set of objective evaluation measures, and to begin training other professionals in family counselling and family therapy for learning disabled persons.

11. Adolescent Wilderness Challenge Program

This program was developed by Learning Centre clinical psychologists, Deborah Alexander and Ann Parker. The goal of this program was to enhance self-awareness and self-confidence by introducing a group of learning disabled adolescents to highly challenging situations.

The program has three components: wilderness activity, community service with the handicapped, and regular, on-going group discussion and writing.

Participants: Eight 13-15 year old boys took part in the program.

Procedure: The program has been conducted on two occasions: January to June, 1983, and during July, 1983. The July program involved over 160 hours of treatment time. The schedule of events consisted of the following components: Monday-Tuesday wilderness trip; Wednesday - community service; Thursday - Wilderness day trip; Friday - recap of the week and planning for the next week's activity.

Wilderness activities included: white water rafting, ropes course, rock climbing and backpacking. In each of these activities the emphasis was not on success per se, but rather on making the effort and extending one's limits.

For the community service component the participants spent a day a week working as Junior Leaders in the Calgary Parks and Recreation Programs for the Mentally and Physically Handicapped.

Evaluation and Recommendations: From every indication, this program was successful. The participants and their families met with the Learning Centre staff after the program was completed and the feedback indicated that the participants were showing more initiative and trying a variety of things they had not been willing to participate in previously.

In future work objective measures of the impact of the program will be developed. At the present time measures of locus of control and self-concept appear to be promising. In addition, the benefit of this program on classroom behaviour must also be explored.

12. Animation Film Program

The Animation Film Program was developed by Deborah Alexander, a Learning Centre clinical psychologist seconded from Alberta Children's Hospital, Shari Shaw, the Learning Centre social worker, Evelyn Dever, a Learning Centre teacher, and Ann Parker, a Learning Centre psychologist. This program has been conducted five times:

1. Spring, 1980: six students, aged 13-14,
2. Fall, 1980: five students aged 11-12.
3. Spring, 1981: six students aged 11-12
4. Fall-Spring, 1981-82: six students aged 10-11
5. Fall-Spring, 1982-83: five students aged 10-12

Procedure: In this program the learning disabled children who participated were taught to make their own animation film. To facilitate this process, each child was paired with a 16 year old same sex model to work with until the film was completed. The role models were volunteer students from Strathcona-Tweedsmuir School.

Most emphasis in the program was placed on careful planning of the film and exploring alternative methods of communicating ideas. The staff members involved in the program attempted to use the activities inherent in film-making to build the student's self-esteem. Thus, not only did each young film-maker go home with his/her own film to show and keep, but a group of more than 60 family members and friends were assembled for a film night, complete with Olympic-like medals. It was anticipated that when the student saw the film with the audience present, it would reinforce the notion that he/she could learn and make statements about things that others would find interesting.

The film topics have varied from year to year. In the first year of film program each child simply made up a story of his/her choice. In subsequent years attempts were made to introduce more academic content. Thus, topics were selected from the school curriculum, such as Trade in Alberta, Microscopic Animals, The Regions of Canada. These "academic" films might be viewed as research papers in which students who were delayed in reading and writing skills made use of an alternative method of communication. In the course of making films with academic content, a number of other skills were taught including note taking, outlining, and locating information in books. In addition, students were asked to give an oral presentation of their film-idea to their fellow students as it was in progress.

As yet, measures of the efficacy of film program have not been developed. The Learning Centre staff who have worked with this program suggest that the program has positive effects on expressive language, planning ability and self-concept.

To summarize, Learning Centre staff have developed methods whereby animation film making may be used in the treatment of the learning disabled child. The indications thus far are that film making can build self-esteem and enhance organizational skills. Future work will focus on adapting this program to the classroom setting, developing appropriate evaluation measures, and transferring the skills learned during film-making to the academic setting.

C. Discussion

One of the major goals of the Learning Centre is to develop and evaluate assessment approaches and treatment programs to be used with learning disabled persons. As shown in this section, a broad range of programs has been undertaken. In terms of formal research projects, both assessment and treatment studies have been conducted.

Pilot projects have consisted largely of evaluations of treatment programs. The pilot projects represent a beginning of Learning Centre program development. They represent a wide spectrum of approaches to treatment; i.e., some programs attempt to teach specific academic skills (Repeated Readings and Mathematics Skills groups) while others focus on more general problem solving strategies and thinking skills (Instrumental Enrichment and Cognitive Behaviour Modification). This wide ranging approach seems to be quite reasonable for a developing organization. However, most of these projects have been conducted only on one occasion, and have not utilized control groups. It is very important that this work be brought to fruition. Those programs which appear to be promising should be repeated with larger samples and appropriate control groups. Two of the pilot projects (Instrumental Enrichment and Repeated Readings) have already been implemented as formal research studies.

In the sections which follow, two of the implications of the pilot projects will be discussed:

1. Parental Involvement in Treatment Programs
2. The Relative Merits of Academic Skills Training, and Strategies Training

1. Parental Involvement in Treatment Programs

From the set of programs which have been developed, perhaps the most striking treatment gains have been obtained in the Instrumental Enrichment Parent Training Program. The children who participated in this program showed a gain of over 5 grade levels in reasoning skills. The unique feature of this program is that the treatment was delivered by parents under the supervision of Learning Centre staff. The large magnitude gains which were made suggest that parental involvement programs should be given high priority in future research at the Learning Centre. However, two points should be considered. First, the children in the program were lower functioning than children in most other programs. This fact may have enhanced the size of the treatment effects because of regression to the mean. Second, the fact that parents were willing to participate in such a demanding program, suggests that there was a great deal of motivation and interest to help their children. In other words, this may have been a group of children whose optimal family environments may have contributed substantially to the apparent efficacy of the program.

With these two reservations in mind, however, the encouraging results of this program suggest that the role of parents in delivering treatment should be explored more fully. Children with families who are willing and able to become actively involved in the treatment process, could be offered programs in which there is considerable parental involvement. Given the paucity of resources to deal with the needs of learning disabled persons, this approach could enable professionals to spend more of their efforts working with children whose families cannot become directly involved in the treatment process.

2. The Relative Merits of Academic Skills Training, and Strategies Training

The results of the pilot projects suggest that there can be substantial treatment effects from academic remediation or from the teaching of learning strategies. The Repeated Readings and Mathematics Skills programs led to substantial treatment gains as did the cognitive strategies approaches such as Orienteering, and Instrumental Enrichment. The question which needs to be pursued at this point is not whether one should teach strategies or academic skills, but rather when, where and with whom should these approaches be used. How can one design programs which have the optimal balance of strategies and academic content?

Two studies which are currently in progress attempt to address this issue. First, in a new study of mathematics remediation, two treatment regimens are being contrasted. One group will receive a prescriptive mathematics approach only; the other will receive a combined prescriptive-math strategies approach. In addition to contrasting the relative efficacy of the two treatment approaches, this study will enable the Learning Centre teachers to refine the procedures for combining the strategies and prescriptive approaches.

Similarly, in the next phase of the study of Orienteering as a remedial technique, it is planned to teach orienteering as part of a regular classroom curriculum. Two groups will be contrasted: One will receive the learning strategies program suggested by Alley and Deshler (1979), the other groups will receive learning strategies plus orienteering. The results of this study should indicate if orienteering can be effectively applied in the regular school curriculum.

CHAPTER III: THE SERVICE PROGRAM

A. Service Procedures

During the first year of operation a set of procedures were developed to streamline client service. These procedures consist of five major components: referral, initial interview, assessment, individual and group treatment programs, and follow-up. Descriptions of each of these procedures may be found in Appendix II.

B. Evaluation Questions

There are two general components to the service program at the Learning Centre: the assessment process and treatment programs. For assessment, the evaluation focussed on three issues:

1. Were parents and teachers of clients satisfied with the procedures implemented to communicate assessment results, such as the post-assessment conference?
2. Did the information in the assessment report contribute to the parent's and teacher's understanding of the client's learning problem?
3. Did the information in the assessment report help the parent and teacher deal more effectively with the child's learning problem?

With respect to the treatment programs three questions were asked:

1. Were the parents and teachers of clients satisfied with the service received at the Learning Centre?

2. According to reports of parents and teachers, were the recommendations made in the assessment report satisfied by the treatment program which was implemented?

3. Were specific treatment programs which were implemented effective in treating the learning difficulty? (N.B. This information has been presented in the section describing pilot programs)

C. Evaluation Methods

1. Characteristics of the Client Sample

For the most part this information was obtained from questionnaires completed by parents and teachers at the time of referral. Both parents and teachers were asked to give information regarding the client's past treatment history, the type of employment of the parents, the name of the referring party. In addition, the referral package included a checklist describing a wide range of academic subjects (reading, spelling, math, etc.) and behavioural characteristics (attention span, motivation, temper tantrums). Parents and teachers were asked to describe the child's level of functioning in each area. The form used to collect this information is shown in Appendix III.

The Learning Centre staff who did the assessment also completed one of the checklists after the assessment for the purpose of computing an inter-rater reliability.

2. Diagnostic Assessment Evaluation

Three methods were used to evaluate the diagnostic assessment process, as is explained in the following sections.

a. Feedback Questionnaires from Parents and Teachers

For the years 1980-81 and 1981-82, data were obtained from questionnaires sent to parents and teachers of clients at the end of the academic year (late May or early June). These questionnaires were used to obtain feedback regarding the procedures implemented to communicate assessment information such as the post-assessment conference, and the content of the assessment report. Each question was answered in a multiple choice format: strongly agree, mildly agree, etc.

b. Telephone Interview Evaluation of Assessment Objectives

For the 1982-83 year a different approach was taken. For each assessment which was performed, the staff person in charge indicated the areas of functioning which were examined (e.g., reading, writing, spelling). Two people were selected to evaluate the information gathered in the assessment report. Generally, these evaluators were the client's parents and the client's classroom teacher. For each area of the assessment these individuals were asked two questions in a telephone interview. First, they were asked to indicate the quality of the information which they received by evaluating (on a five point scale) the following two statements:

> "The assessment report contributed significantly to my understanding of this child in....... "(the specific problem which was assessed, reading, spelling, math, was inserted in this space)
>
> "Did the information in the assessment report help you deal more effectively with the child?"

3. Treatment Program Evaluation

a. The Satisfaction of Parents and Teachers of Clients with the Service Provided by the Learning Centre

As part of the routine follow-up procedures, the parents and teachers of clients were asked to provide an evaluation of their experience with Learning Centre staff and programs. The questionnaires used for this purpose asked a broad range of questions; e.g., Did you feel you were an active participant in setting remedial goals for your child? Did you play an active role in implementing the treatment program for this child? A five point scale was used to evaluate each of these questions.

b. Efficacy of Treatment Programs in Implementing the Recommendations Made in the Assessment Report

After a treatment program had terminated, the client's parent was asked to evaluate the extent to which the program recommendations had been met. This information was obtained by means of a telephone interview conducted by a member of the Learning Centre research staff who had had no previous contact with the client or the client's parents. In making the evaluations, a goal attainment scale (GAS) procedure adapted from Kiresuk and Sherman (1968) was used. Each recommendation in the assessment report was evaluated in terms of the following categories:

1. Best anticipated success: fulfillment of the recommendations exceeded your expectations.
2. More than anticipated success
3. Expected level of success
4. Less than expected level of success
5. Most unfavorable outcome thought likely

D. Results

1. Description of the Client Sample

The Learning Centre was designed to serve the needs of the learning disabled population of Calgary and the surrounding geographical areas. No attempt has been made to precisely define a learning disability, but rather there are general guidelines which are used to determine if a client is appropriate. The client must be of average intelligence, and show signs of a discrepancy between intellectual potential and achievement. For most clients this discrepancy exists in a specific area, such as reading or math. Most importantly, there must be good reason to believe that a learning problem is the source of the presenting problem, and not some extraneous factor such as a psychiatric disorder.

In the first three years of the Learning Centre's operation 820 referrals have been processed. Two hundred ninety-two children between the ages of 5 and 18 (average age 10.75 years) have been seen for an Initial Interview, 163 have received a diagnostic assessment, and 120 have participated in either individual or group treatment programs. One hundred sixteen of the clients who have been seen are on follow-up caseloads of Learning Centre staff. Also, there are 89 clients with completed referral information who are waiting for an Initial Interview. Two hundred and three of the clients seen for an Initial Interview were male and 89 were female. The clients who were referred but not seen for an Initial Interview were either not appropriate (i.e., were not learning disabled), voluntarily withdrew, or were referred elsewhere (e.g., Alberta Children's Hospital).

In addition to the school age children who were seen, 86 adult clients participated in the special consult program. Generally, special consults were seen for short term intervention and assessment of only two or three hours duration.

a. Academic and Behavioural Difficulties

(1). Parent and Teacher Ratings 1980-82

The description of learning difficulties in the client sample has been obtained from a checklist (Appendix III) which is sent as part of the referral package to parents and teachers. For each type of learning problem which appeared on this checklist there were five alternatives available: severe problem, mild problem, no problem, strong, very strong. For the purpose of the data presentation which follows, the frequency of learning problems was calculated by summing across the "minor problem" and "severe problem" categories.

For the years 1980-81 and 1981-82 the description of the academic and behavioural difficulties was obtained from checklists completed by parents and teachers only. In 1982-83 The Learning Centre staff person who was in charge of the assessment also completed the checklist after the assessment was completed. In the data presentation which follows, the frequency of various learning or learning-related problems is presented. Only data from those clients who were seen for an Initial Interview were included in this data presentation. Also, because of the variety of problem areas included in this checklist, it was necessary to present the data in four tables: two for parents and two for teachers. One of these presents information on more directly academically-related learning difficulties; the other is concerned with behavioural/psychological difficulties.

First, for parent ratings of academic difficulties (Table 1), the most frequent learning problem across all three years of the evaluation was in the area of reading (72% of the clients across three years). However, note that writing, spelling and math were always consistently high (roughly 50% of the clients had difficulties in these areas). For the behavioural/psychological variables (Table 2) short attention span was the most frequent difficulty rated. Over the three year period, nearly two-thirds of the clients were thought to show signs of short attention span. Also, problems of self-esteem and organizational skills were reported for approximately 40% of the clients. Oral language difficulties were evident in approximately 25-30% of the cases.

The data obtained from teachers is shown in Tables 3 and 4. There is generally good agreement with the parent ratings. The largest discrepancy with respect to parents was for handwriting (53% for parents and 65% for teachers) and oral language (28% for parents and 44% for teachers).

Also, according to the reports of teachers (Table 5), nearly 50% of the clients repeated a grade, and over

TABLE 1

Parent Ratings of Learning Difficulties Academic Variables			
	April 1/80 March 31/81 (%yes)	April 1/81 March 31/82 (%yes)	April 1/82 March 31/83 (%yes)
Reading	81	63	73
Writing	43	53	63
Spelling	41	63	70
Math	52	51	63
Listening Skills	nr	10	8
Written Lang. Skills	nr	14	15
Physical Activity	4	14	15
Music	1	nr	nr
Arts and Crafts	4	17	18
	N=93	N=59	N=68

* nr No Results Available

TABLE 2

Parent Ratings of Learning Difficulties

Psychological/Behavioural Variables

	April 1/80 March 31/81 (%yes)	April 1/81 March 31/82 (%yes)	April 1/82 March 31/83 (%yes)
Peer Relations	37	27	24
Teacher Relations	14	27	18
Self Esteem	44	46	49
Organizational Skills	42	54	56
Oral Language Skills	31	29	24
Attention Span	77	70	60
Motivation	39	42	55
Active/Restless	44	22	25
Impulsive	45	25	24
Distractable	73	25	24
Fidgets	9	27	24
Disruptive	26	36	39
Cries Easily	5	22	16
Moody	28	31	27
Temper Outbursts	38	46	25
	N=93	N=59	N=68

* nr No Results Available

TABLE 3

Teacher Ratings of Learning Difficulties

Academic Variables

	April 1/80 March 31/81 (%yes)	April 1/81 March 31/82 (%yes)	April 1/82 March 31/83 (%yes)
Reading	67	74	74
Writing	74	52	69
Spelling	47	67	76
Math	37	53	68
Listening Skills	nr	7	12
Written Lang. Skills	nr	14	13
Physical Activity	3	24	15
Music	1	nr	nr
Arts and Crafts	2	21	19
	N=93	N=58	N=68

* nr No Results Available

TABLE 4

Teacher Ratings of Learning Difficulties

Psychological/Behavioural Variables

	April 1/80 March 31/81 (%yes)	April 1/81 March 31/82 (%yes)	April 1/82 March 31/83 (%yes)
Peer Relations	27	41	24
Teacher Relations	14	27	18
Self Esteem	44	46	49
Organizational Skills	42	54	56
Oral Language Skills	31	29	24
Attention Span	77	70	60
Motivation	39	42	55
Active/Restless	44	22	25
Impulsive	45	25	24
Distractable	73	25	24
Fidgets	9	27	24
Disruptive	26	36	39
Cries Easily	5	22	16
Moody	28	31	27
Temper Outbursts	38	46	25
	N=93	N=59	N=68

* nr No Results Available

TABLE 5

Teacher Descriptions of Learning Centre Clients

Information	April 1/80 March 31/81 (%yes)	April 1/81 March 31/82 (%yes)	April 1/82 March 31/83 (%yes)
Visual or Hearing Problem	24	26	31
Other Physical Defect	28	28	24
High Absentee Rate	10	10	6
Repeated a Grade	47	40	52
Problems in Home	37	48	28
I feel this Child Has A Learning Difficulty	92	86	85
I feel this Child Also Has Other Problems As Well	65	53	50
	N=93	N=58	N=68

33% had a problem in the home. In over 85% of the cases, the client was thought to have a significant learning problem by the teacher.

(2). Comparison of the Ratings of Learning Centre Clinician, Parents and Teachers

The data for 1982-83 which contrast the ratings of parents, Learning Centre clinicians and teachers are shown in Tables 6 and 7. This comparison was made only for 44 clients who were in treatment programs during the 1982-83 academic year. First, for academic difficulties, the largest discrepancies were for spelling. The Learning Centre (L.C.) clinician (82%) and the parents (84%) found a higher incidence of spelling problems than teachers (59%). Also, there was a large discrepancy between the ratings of math problems between the L.C. clinician (73%) and the teachers (48%). As shown in Table 7, there was a strong tendency for the L.C. clinician to see more problems in the areas of peer relations (55%), teacher relations (48%), self-esteem (71%) and organizational skills (77%) than was the case for either parents or teachers.

In the next analysis of these data, reliabilities were calculated among the three rating sources. This analysis was undertaken by calculating the number of agreements between:

1. The parents and the Learning Centre clinician

TABLE 6

Comparisons of Ratings of

Learning Centre Staff, Parents and Teachers

Academic Variables

Area of Difficulty	LC Clinician (%yes)	Parent (%yes)	Teacher (%yes)
Reading	77	73	66
Writing	46	57	61
Spelling	82	64	59
Math	73	61	48
Listening Skills	43	2	0
Written Lang. Skills	84	2	0
Physical Activity	9	20	25
Arts and Crafts	11	18	20
	N=44	N=44	N=44

*nr No Results Available

TABLE 7

Comparisons of Ratings of Learning Centre Clinicians, Parents and Teachers

Psychological/Behavioural Variables

Area of Difficulty	LC Clinician (%yes)	Parent (%yes)	Teacher (%yes)
Peer Relations	55	34	34
Teacher Relations	48	30	18
Self Esteem	71	50	48
Organizational Skills	77	52	48
Oral Lanugage Skills	30	23	39
Attention Span	46	61	55
Motivation	52	46	48
Active/Restless	16	22	23
Impulsive	27	27	25
Distractable	32	34	42
Fidgets	21	16	23
Disruptive	16	18	23
Cries Easily	11	18	12
Moody	30	30	18
Temper Outbursts	11	27	16
	N=44	N=44	N=44

* nr No Results Available

2. The teachers and the Learning Centre clinician

In order to be counted as an agreement, the two raters must have selected the identical alternative.

The first analysis conducted was to calculate the reliability coefficient in each of the comparisons by applying the following formula:

number of agreements/(number of agreements + number of disagreements)

The reliability coefficient obtained for parents and Learning Centre Clinician ratings was .66; that for teachers and Learning Centre clinicians was .59. This finding suggests that there was greater agreement between parents and Learning Centre clinicians than there was for teachers.

In the next analysis the reliability coefficient was calculated for academic and behavioural variables separately. The academic variables included in this analysis were reading, spelling, math and handwriting. The behavioural variables were attention span, motivation, overactivity, moodiness, and temper outbursts. For parents and Learning Centre clinicians the reliability coefficients were .66 and .64 for academic and behavioural areas, respectively. For teachers and Learning Centre clinicians the comparable coefficients were .59 and .58. Thus, the reliabilities were very consistent for behavioural and academic variables and were consistently higher for parents and Learning Centre clinicians.

(3). Change in the Distribution of Learning Problems as a Function of Age

Tables 8 and 9 show the change in the distribution of learning problems in three age groups, nine or younger, 10 to 12, and 13 or older. The data presented in Table 8 suggest that writing, spelling and math problems increased as a function of age, and Table 9 indicates that problems of self-esteem showed a linear increase with age. Analysis of variance indicated that there were significant differences as a function of age for writing (F 2,194=9.98, p<.0001), spelling (F 2,194=7.46, P<.001), math (F 2,194=5.2, p<.01). However, the age differences for self-esteeem were not significant (F 1,194=1.54, n.s.). Orthogonal decomposition of these effects indicated that across age groups there were significant linear and quadratic trends for writing (t=-3.7 and t=-3.0), significant linear trend across age groups for spelling (t=-3.73), and a significant linear trend across age groups for math (t=-3.19). All these finding indicate a significant age-related increase in the incidence of these learning problems.

b. Prior Service History of Clients in the Sample

Table 10 shows the data concerning prior service

TABLE 8

Parent Ratings of Learning Difficulties

Academic Variables

Age Grouping

	9 or younger (%yes)	10 to 12 (%yes)	13 or older (% yes)
Reading	71	69	76
Writing	49	39	66
Spelling	49	47	68
Math	44	60	64
Listening Skills	8	8	8
Written Lang. Skills	13	8	17
Physical Activity	9	8	12
Music	nr	nr	nr
Arts and Crafts	13	5	16
	N=85	N=62	N=74

* nr No Results Available

TABLE 9

Parent Ratings of Learning Difficulty

Psychological/Behavioural Variables

Age Groupings

	9 or younger (%yes)	10 to 12 (%yes)	13 or older (%yes)
Peer Relations	25	37	30
Teacher Relations	14	18	16
Self Esteem	38	47	55
Organization Skills	45	48	57
Oral Language Skills	29	26	28
Attention Span	72	75	63
Motivation	38	47	50
Active/Restless	29	37	34
Impulsive	29	39	32
Distractable	57	61	48
Fidgets	17	15	24
Disruptive	25	19	24
Cries Easily	15	15	10
Moody	25	27	32
Temper Outbursts	48	27	27
	N=85	N=62	N=74

* nr No Results Available

TABLE 10

Special Help Received by the Student in the School System

	April 1/80 March 31/81		April 1/81 March 31/82		April 1/82 March 31/83	
	Parent (%yes)	Teacher	Parent (%yes)	Teacher	Parent (%yes)	Teacher
LAC	7	12	17	24	18	19
Special Class	28	33	19	12	18	21
Special School	12	12	10	7	10	10
Tutor	11	20	22	17	16	25
Other Help	10	28	10	40	22	28
Never Given Help	46	21	34	29	23	25
	N=93		N=59		N=68	

received in the school system and Table 11, the data for service obtained outside the school system. The data are presented separately for each of the three years of the evaluation. Across the three years, the only trend appears to be that fewer clients were in special classes in the last two years of the evaluation than in the first year. The opposite tendency may be seen for the number of clients attending LAC: there are relatively few clients in the first year of the evaluation, but an increase of 10-15% in the percentage of children seen at LAC in the last two years of the evaluation. The largest discrepancy between parents' and teachers' perceptions of help received is in the "no help" category. For 1980-81 parent ratings indicated that 46% of the clients had not received any assistance, whereas in the opinion of teachers, only 21% of the clients had not received previous help. The discrepancy was considerably less in the subsequent two years; i.e., 25-35% of the clients had not received previous help according to both parents and teachers.

Outside the school system, Table 11 indicates that private psychologists, Community Agencies and Hospital Clinics were the primary resources. The largest source of service was private psychologists, followed by Community Agencies and Hospital Clinics.

TABLE 11

Prior Assessment Outside the School System

	April 1/80 March 31/81		April 1/81 March 31/82		April 1/82 March 31/83	
	Parent	Teacher	Parent	Teacher	Parent	Teacher
	(%yes)		(%yes)		(%yes)	
Hospital Clinic	34	22	12	29	19	15
Foothills Education Services	1	3	5	3	1	3
Hal Anderson Associates	2	3	3	2	3	3
U of C Psychol Ed	2	1	2	0	2	0
Other Outside Services	7	18	14	7	10	16
Psychologist Consulted Privately	62	63	41	64	40	70
Community Agency Help	26	16	25	19	29	18
	N=93		N=59		N=68	

c. Occupational Status of Parents of Children Seen at the Learning Centre

The data for both mothers' and fathers' occupations is shown in Table 12. For fathers', the most frequent occupational category checked was professional-managerial. For the first two years of the evaluation approximately 33% of the fathers were professionals. The proportion increased to 49% for 1982-83. The second most common occupation for fathers was skilled laborer. The most common occupation for mothers was homemaker. Clerical/sales was the next most common.

d. Referral Source of Clients Seen at the Learning Centre

According to Table 13, over 50% of the referrals to the Learning Centre in the first year of the evaluation were made by parents, and about 33% originated in the school systems. For the last two years, over 30% came from the school and home each. The decline in parent referrals in the last two years was offset by an increase in referrals from "other sources".

Information obtained informally during Initial Interviews suggested that many parents were encouraged by a third party to make referrals. In a subsample of 50 families, it was found that 65% of them had made the referral at the suggestion of a third party. Thirty-two

TABLE 12

Parental Type of Occupation						
	April 1/80 March 31/81		April 1/81 March 31/82		April 1/82 March 31/83	
	Father	Mother	Father	Mother	Father	Mother
	(%yes)		(%yes)		(%yes)	
Homemaker	1	57	2	38	0	35
Unskilled	4	5	5	7	4	6
Semi Skill	12	3	10	5	4	6
Skilled	10	4	24	8	12	4
Service Occupation	7	1	8	5	9	7
Agriculture	3	3	2	2	1	1
Clerical/ Sales	4	14	4	20	3	27
Professional or Managarial	36	8	36	15	49	15
	100	100	100	100	100	100
	N=93		N=59		N=68	

Table 13

Sources of Referral to the Learning Centre

	April 1/80 March 31/81	April 1/81 March 31/82	April 1/82 March 31/83
	(expressed as percentage of total referrals)		
Parent or Family	53	34	37
School Systems	34	38	38
Physician or Hospital	10	7	4
Social Services	0	0	5
Courts or Corrections	0	2	3
Other Sources	3	19	13
Total	100%	100%	100%
	N=93	N=59	N=68

percent of these suggestions came from school personnel (a visiting teacher or classroom teacher).

2. The Effectiveness of the Diagnostic Assessment Service

a. Questionnaire Data

Table 14 gives the results obtained from questionnaires received from 60 teachers (return rate 82%) for 1980-82. The column to the left - N responding - indicates the number of teachers who attempted to answer the question. Note also that the % agree and % disagree do not always add up to 100%. The remaining respondents indicated that they had insufficient information to answer the question.

The responses to all the questions were very positive; i.e., all exceeded 90% in agreement with the assertion except for the question which asked if Learning Centre staff listened to the viewpoint of the teacher (76% agree and 10% disagree, 14% had insufficient information to answer).

The parent responses are shown in Table 15. Over the two year period, 70 questionnaires were returned (88% return rate). Note that there are two classes of questions shown in Table 15. Those marked with an asterisk were included only in the 1981-82 questionnaire and therefore there were only 35 responses obtained. All

TABLE 14

Teacher's Rating of Satisfaction With Service
-Assessment Component-

Statement Teachers Responded To:	N Responding	AGREE %	DISAGREE %
Teacher Agreed with the Referral	52	96	4
Post Assessment Conf was a good use of time	26	96	4
Learning Centre Listened to my Viewpoint	29	76	10
Formulation of Remedial Goals was Understandable	30	97	3
I would consider referring other children with similar problems to the Learning Centre for help	60	93	7

TABLE 15

Parent's Rating of Satisfaction With Service
-Assessment Component-

Statement Parents Responded To:		AGREE %	DISAGREE %
Parent Initiated Referral to the Learning Centre	*	65	18
Someone Encouraged Me To Seek the Services of the Learning Centre	*	56	21
The Initial Interview was a Good Use of Time		89	9
The Post Assessment Conference was a Good Use of Time		87	2
I Felt Free to Express My Views at the Initial Interview	*	100	0
I Felt Free to Express My Views at the Post Assessment Conference		100	0
Learning Centre Staff Showed Interest in What I had to Contribute	*	100	0
Information Gained from the Post Assessment Conf Gave Me A Clearer Picture of My Child		86	7
I Agree with the Recommendations of the Post Assessment Conference		88	0

* Indicates N=34 All other N=70.

other questions were asked in both years. The responses obtained to these questions were all over 85% positive.

b. Telephone Interview Evaluation of Assessment Objectives

Fifteen clients were randomly selected from the total of 50 clients who were assessed during the 1982-83 academic year. Parents and teachers of the clients were asked the following two questions:

1. Did the information in the assessment report contribute to your understanding of this child's...............problem? (N.B. the child's specific difficulty - reading, writing, spelling, etc - was indicated in the blank space.)
2. Did the assessment information help you deal more effectively with this child's learning problem?

The data pertaining to the first question are shown in Table 16. Responses have been broken down into each of the subject areas. It can be seen that most of the assessments were concerned with math, reading, spelling, written language and organizational skills. None of the assessment reports examined attention span and only one was in the area of self-concept. The results show quite clearly that for both parents and teachers the assessment information contributed to their knowledge of the child's difficulty. No parent or teacher responded negatively to the question.

For the second question 11 parents and 9 teachers

TABLE 16

Replies to the Question:
"Did the Assessment Information Contribute to your knowledge of the Child's Problem?"

Area	Strongly Agree		Mildly Agree		Mildly Disagree		Strongly Disagree		Can't Answer		Total
	Par	Tch	Par	Tch	Par	Tch	Par	Tch	Par	Tch	
Math	6	2	0	5	0	0	0	0	1	0	7
Reading	7	7	2	2	0	0	0	0	0	0	9
Spelling	4	3	4	3	0	0	0	0	0	0	8
Handwriting	2	1	1	2	0	0	0	0	0	0	3
Written Language	6	6	2	1	0	0	0	0	0	1	8
Listening Skills	1	1	0	0	0	0	0	0	0	0	1
Organizational Skills	4	5	0	0	0	0	0	0	1	0	5
Attention Span	0	0	0	0	0	0	0	0	0	0	0
Self Concept	1	1	0	0	0	0	0	0	0	0	1
Learning Strategies	2	1	0	1	0	0	0	0	0	0	2

Par=Actual Number Parents Responding   Tch=Number Teachers Responding strongly agreed with the assertion; 2 parents and 5 teachers mildly agreed. Two parents and one teacher lacked sufficient information to judge.

3. Effectiveness of Treatment Programs

a. General Client Satisfaction with Service Questionnaire

At the end of each academic year questionnaires were sent to the parents and teachers of clients, requesting information regarding the quality of service received at the Learning Centre. The responses obtained from 65 teachers are shown in Table 17. These data have been averaged for the years 1980-81 (n=31) and 1981-82 (n=34). Responses were very positive to questions pertaining to the appropriateness of the remedial goals which were set (95% agree), the appropriateness of the treatment program to suit the remedial goals (91% agree), and the fact that children benefitted from attending the Centre (84% agree). However, some concern was expressed regarding teachers involvement in planning the remedial program (71% agree), the teachers' involvement in the evaluation of the remedial program (65% agree), the degree to which teachers were kept informed of the child's progress (75% agree), and the ability of the teacher to integrate the Learning Centre program into the classroom (72% agree). However, teachers responded very positively to the

TABLE 17

Teacher's Rating of Satisfaction With Service
-Treatment Component-

Statement Teachers Responded To:	N Responding	AGREE %	DISAGREE %
Teacher involved in planning of Remedial Program	35	71	29
Learning Centre Staff were readily available to assist me	55	87	13
Remedial goals set for this child were appropriate	38	95	5
I was involved in the Evaluation of the Remedial Program	43	65	35
The Treatment was well suited to Remedial Goals	34	91	9
Learning Centre provided me with addition information	61	79	20
Teacher was adequately informed of child's progress	57	75	25
Child benefitted from attending the Learning Centre	55	84	16
Teacher able to integrate Learning Centre Program into the Classroom	46	72	18
Program could be run just as well in the classroom	33	27	73
This child requires further help from the Learning Centre at this time	58	91	9

question that the Learning Centre staff were readily available to assist them (87% agree).

There was some suggestion of the same pattern in the responses to the parent questionnaire (Table 18). The least positive answer was to the question which asked if the parent was an active participant in the outcome of the remedial program (67% agree). However, responses were more positive for the question which asked if parents were active participants in planning the remedial program (86% agree).

b. Evaluation of Program Recommendations

Thirty clients who had participated in treatment programs during the 1982-83 school year were randomly selected and their parents were asked in a telephone interview to evaluate the extent to which the program recommendations had been met. The recommendations obtained were taken from conference reports written by Learning Centre staff. The 30 reports were written by 10 different Learning Centre staff. However, there was considerable disparity in the number of reports written per staff. Three staff were responsible for 20 reports and seven staff for the other 10 reports. The 30 reports contained 102 recommendations in total; i.e., the average report contained 3.4 recommendations.

In order to facilitate the data presentation, the recommendations were classified into six categories:

TABLE 18

Parent's Rating of Satisfaction With Service
-Treatment Component-

Statement Parents Responded To:	AGREE %	DISAGREE %
I was An Active Participant In Planning Remediation For My Child	86	13
I Was Active In Evaluating The Outcome Of The Remediation	67	14
Referral Made By The Learning Centre To Another Agency Was Appropriate	only 2 cases - both agreed	
The Other Agency Referred To Was Able To Help My Child	both cases agreed	
Learning Centre Staff Showed Care and Concern	89	1
The Learning Centre Rated as The Most Helpful Agency Seen to Date	86*	5*
I would Recommend The Learning Centre To Others With Similar Needs To My Own	100	0
This Child Requires Further Help From The Learning Centre At This Time	82	7

* Indicates N=35 All other N=70

(the number of recommendations in the category is given in parenthesis)

1. A Learning Centre program was recommended, but no specific outcome goal was set. (n=24)
2. A school-based program was recommended, but no specific outcome goal was specified. (n=23)
3. A Learning Centre program was recommended, and there was an outcome goal specified. (n=36)
4. A school-based program was recommended, and there was an outcome goal specified. (n=16)
5. A home-based program was recommended, and an outcome goal was specified. (n=2)
6. The recommendation involved a commitment on the part of the client. (n=1)

Note that nearly 50% of the recommendations did not include an outcome goal; i.e., they consisted of a general statement that a program should be carried out either at school or at the Learning Centre. Also, few of the recommendations concerned a family based program or involved a commitment on the part of the client.

For Category 1 recommendations (Learning Centre program, but no outcome goal specified), parents indicated that the program was carried out as recommended in 68.4% of the cases. For Category 2, parents agreed that the program was carried out as recommended in 47.8% of the cases. For Category 3 (a Learning Centre program with a goal specified), parents indicated that the program had achieved the expected level of success in 65% of the cases. 12% indicated that the most unfavorable outcome possible had been achieved. For Category 4 programs, parents thought that in 67% of the cases the programs had achieved at least the expected level of success. In 25% of the cases they thought that the worst possible outcome had been achieved.

The assessment report recommendations were also analyzed in terms of the specific content areas covered. The five areas considered in this analysis were:

1. Academic goals (n=29): The goal focused on an academic area such as reading, spelling, language arts.
2. Processing goals (n=25): The goal was concerned with an information processing component such as memory, reasoning, thinking skills, or specific learning strategies.
3. Inter-agency goals (n=21): These goals were concerned with coordinating services between agencies which are involved in treating learning disabled persons. For example, a Learning Centre staff person might attempt to arrange for a special school placement for a client.
4. Personal-social goals (n=13): The goal was concerned with the emotional well-being of the client. This would include goals which focus on self-control strategies, interpersonal communication skills, relationships with teachers, etc.
5. Compensation skill goals (n=6): These goals were concerned with teaching the client ways to use other skills to circumvent a learning disability. Using a typewriter to compensate for a fine motor problem is an example of a compensatory skill.

Most recommendations were made in the areas of academics, processing and intra-agency concerns. Fewer were made for personal-social problems or compensatory skills. Six could not be classified.

E. Discussion

1. The Behaviour Checklist

For the most part, the data presented concerning the description of the client population has been based on checklists completed by parents and teachers at the time of referral. It is important to insure that this information is accurate because it is used (along with several other types of information) to determine which clients will receive an Initial Interview. Reliance on such data can be hazardous for a number of reasons. First, given that the information was obtained by mail, one cannot be sure if the raters understood the instructions. Second, since the ratings were made by people with varied backgrounds, it would be expected that the criteria used for determining the presence of a learning problem would also vary considerably. Third, some people are undoubtedly much more conscientious in filling out such checklists than others. Fourth, one cannot be sure how familiar each rater was with the child's learning problem. Some parents are probably not well-versed with the difficulties faced by the child at school. Similarly, teachers may not always be aware of the details of a child's learning problem. This is especially the case in the data presented in this report because the ratings were not adjusted for the amount of time the teacher knew the child.

It was, therefore, promising to find that there were high levels of agreement among the parents, teacher and Learning Centre clinician ratings. This suggests that the ratings can be counted on to provide reasonably accurate information and can therefore be used to screen clients for Initial Interviews. It should be noted, however, that the checklists used to make the ratings used only the broadest descriptive terms (reading, spelling, handwriting, etc.) and do not necessarily imply detailed knowledge of these disorders.

2. Implications of the Client Descriptive Information

The data obtained concerning the characteristics of the client population seen at the Learning Centre have consistently shown a high incidence of reading, spelling and attention disorders. For each year of this evaluation study it has been found that roughly two-thirds of the clients seen present problems in each of these areas (given that clients' have problems in more than one area). It should be realized that the magnitude of these learning problems is such that no single agency can deal with the problems. It is certainly not within the mandate of the Learning Centre to attempt to deal with all the problems in these areas. However, there are steps that can be taken by the Learning Centre so that services might be delivered more effectively. One vital function that the Learning Centre consortium can serve is to ensure that the agencies responsible for providing services are coordinating their efforts to deal with the most prevalent learning problems. This action could take several forms. For example, discussions within the Learning Centre consortium could lead to the partitioning of services so that agencies will focus more intensively on certain types of disorders or age groups. This would necessitate an efficient referral network so that clients could be referred to the most appropriate treatment source.

Alternatively, the consortium might organize a survey to gather data on how member agencies are dealing with the most prevalent learning difficulties. This could include evaluation studies which attempt to assess the relative effectiveness of programs which are being used. On the basis of this evaluation a set of recommendations could be drafted regarding the most effective treatment methods for the most prevalent learning problems.

The initial steps for this type of role for the Learning Centre consortium are being taken in the Fall, 1983. The executive of the Learning Centre Board and Learning Centre staff are meeting with the administrators and staff of each member of the consortium to discuss how the resources of the Learning Centre can best benefit them and the community of the learning disabled. In addition, meetings are planned with other community groups which deal with the learning disabled such as Foothills Academy and the Psychoeducational Clinic at the University of Calgary.

The analysis of the distribution of learning difficulties as a function of age indicated that there were significant age-related increases in the incidence of handwriting, spelling and math difficulties. There were no significant decreases across age groups for any of the the learning problems included in the checklist. This finding does not necessarily mean that these problems get worse with age. It may be that the older students always had more severe difficulties in these areas. However, it may be pertinent that the age-related increases were very selective and did not include a broader range of learning difficulties. One possible interpretation of the data could be that these problems may be the most difficult to treat, although to make this conclusion with any degree of certainty it would be necessary to monitor the effects of remediation in a group of students over a long time period. These data should be of concern because of the paucity of services for adolescents. Most of the services available in the school systems are aimed at the lower grade levels. The data in this evaluation suggest that learning problems do not go away with age, and in fact some of them may get worse. The Learning Centre has responded to this problem by identifying adolescents as a priority area. Two of the major programs (The Adolescent Experiential Learning Program and the Adolescent Communication Skills Program) were both aimed at the older age group.

3. The Middle Class Bias to the Sample

One constant source of concern of the Learning Centre staff has centered around the middle class bias to the clientele. For each year of the evaluation, roughly one-third to one-half of the clients have had fathers in the professional or managerial positions. The highest proportion of professional fathers was found for the sample of clients seen in 1982-83, so there is no indication that the sample is becoming more equitably distributed across socio-economic classes with time.

There have been two actions taken to counteract this middle class trend. First, for 1981-82 and 1982-83, the Learning Centre has obtained funding from the Burns Foundation to provide funds for children who had no transportation to the Centre, and whose parents did not have the means to provide it. It was anticipated that this would make it easier for children from financially-stressed families to get to the Centre.

While this program has benefitted 25 children, there is no indication as yet that it has made the overall distribution of services more equitable across socio-economic classes.

The second action was a plan to have a mobile unit program which would enable Learning Centre staff to bring services to the community. It was hoped that this project would make the services of the Learning Centre available to a broader range of students. However, attempts to secure the funding to finance the mobile unit have not yet been successful.

A middle class bias to the client sample may be an inherent characteristic of an agency such as the Learning Centre which accepts a large number of parent referrals. Middle class parents may be more likely to recognize and take action to deal with their child's learning problem than lower class parents.

Future plans to deal with this problem include continuing to pursue funding for the mobile unit. It is also anticipated that services will be more equitably distributed if more Learning Centre treatment studies are conducted in the regular classroom setting.

4. Prior Service History of the Clients in the Sample

According to parent and teacher reports 20-30% of the children who have been referred to the Learning Centre have not received previous assistance from the school board. The significance of these findings is not clear in the absence of additional information. Have these children "slipped through" the network of existing services provided in the school system? Or perhaps in the eyes of school personnel, these children do not have serious learning problems. A more intensive investigation of such children is needed. This could include a determination of the seriousness of their learning difficulties, and an investigation of attempts which have been made in the regular school system to deal with their problems. Such a study could provide valuable information regarding the efficacy of services within the regular school systems.

5. Referral Source of Clients in the Sample

During the initial year of the Learning Centre evaluation, it was a source of concern that over half the clients in the sample were referred by parents and only 25% came from the school system. There were several possible implications of this finding. Did it mean that school personnel did not see the need for the Learning Centre? Or perhaps, was it an indication that many school personnel were unaware of this new agency?

In the past two years the picture has changed considerably. For the years 1981-82 and 1982-83 it was found that one-third of the referrals came from parents and one-third from school personnel. Additional information obtained from follow-up questionnaires indicated that nearly two-thirds of the parent referrals were made at the suggestion of a third party. One-third of these came from school personnel. These findings coupled with the positive results from the Satisfaction with Service questionnaire sent to school personnel suggest that the Learning Centre has achieved credibility within the school system.

6. Assessment

There have been three issues related to assessment which have been addressed in this report: Do the clients of the Learning Centre find the information contained in the assessment reports useful; Does it help them deal more effectively with the client; and Have the procedures which have been implemented to communicate assessment information (such as the post- assessment conference) been effective? The answers to these questions have been very positive. While the data suggest that the parents and teachers of clients have found this assessment information useful, one must be very careful in interpreting these data since they were obtained from a potentially biased sample of observers; i.e., those who have received service from the Learning Centre. Parents and teachers may say that these reports are useful, but this does not mean that the information presented in the assessment reports is a valid representation of the client's learning problem. To the present time, no attempts have been made to determine either the reliability or validity of the assessments made by Learning Centre clinicians. As a research and demonstration agency, the Learning Centre should routinely gather this type of information, both for its own internal purpose and also for public information.

Quite apart from the reliability or validity of the assessments, the present data suggest that action needs to be taken regarding procedures used to make treatment recommendations, which are based on the assessment findings. Almost half of the recommendations made were suggestions that a specific action should be taken, but there was no expectation of outcome specified as part of the recommendation. This method of setting recommendations virtually eliminates accountability from the assessment process; it is tantamount to making a recommendation without having to give the reason for it, or follow through on the commitment made in the recommendation.

From the analysis of the data it was also apparent that not many of the recommendations were concerned with the role of the family in the treatment process, and few recommendations focused on a commitment made by the client. In other words most recommendations were concerned with actions to be taken by professionals to help a client. This characteristic of the recommendations is contrary to the stated goals of the Centre to attempt to treat the whole person and to use a multidisciplinary approach to assessment and treatment.

At the time of this writing, actions have been taken to deal with some of the problems of assessment. A series of group meetings of Learning Centre staff are planned in which the assessment process will be studied and a set of guidelines will be developed to assist staff in making assessments. The following concerns will be addressed.

1. The information in assessment reports must be clearly stated so that it can be understood by parents. If actual test scores are included in the report, the testing procedures must be clearly specified and the significance of the test results must be indicated. Overinterpretation of assessment results must be avoided, particularly with regard to certain labels which are commonly used in describing learning difficulties. As much as possible, assessment results should be presented descriptively. For example, "the client had difficulty understanding spoken sentences in which the prepositions 'on', 'into' and 'out of' were used". This finding does not mean that the client would have difficulty processing all types of auditory information or even all types of sentences. Thus, there is no need to label the client as having "an auditory processing problem".

2. Recommendations must be written in such a way that the goal of the remedial action is clearly understood. Further there should be a time line for each goal which is set, with the expectation that the goals will be evaluated at the specified deadline.

3. "In house" experiments will be conducted in which clinicians will independently formulate a diagnosis and develop a treatment plan from a set of assessment data. Out of this process inconsistencies among staff

will be highlighted and a greater degree of consensus will be achieved.

4. More extensive review of assessment reports will be undertaken. A committee will oversee the development of each assessment, in order to insure that relevant assessment questions are addressed, that the recommendations made are appropriate, and that the results are clearly stated in the assessment report.

In this same vein, a research project has been recently developed by Dr. M. Samuels at the Centre to examine the reliability of the dynamic assessment method (The Learning Potential Assessment Device) developed by Feuerstein (1979). In this study the usefulness of the LPAD in discriminating normals, educable mentally handicapped and two groups of learning disabled children (attention disordered and non-attention disordered) will be investigated. Also, the reliability of examiners' inferences about cognitive deficiencies will be a major aspect of the study.

7. Treatment

The questionnaire responses which were obtained suggested that both parents and teachers had high regard for treatment programs which had been conducted at the Learning Centre. This was especially so regarding the appropriateness and the effectiveness of the treatment programs.

However, the responses which were obtained pointed to three potential problem areas. First, nearly 30% of the teachers who responded indicated that they did not feel sufficiently involved in planning the remedial program. Second, only 65% of the teachers and 67% of the parents felt sufficiently involved in evaluating the treatment program. Third, only 72% of the teachers felt that they were able to integrate the Learning Centre program into the classroom.

These findings suggest that Learning Centre staff need to make greater efforts to keep teachers and parents informed and involved in the remedial process, and in the evaluation of remedial programs. In terms of concerns about involvement in evaluating the outcome of the remedial program, it might be worth considering a formal structure which would enable parents and teachers to evaluate the remedial program. This could be accomplished by having parents and teachers give a written evaluation of the remedial program at a follow-up conference. Such a process might encourage parents and teachers to be more candid in giving their opinion of the outcome of the treatment program. Similarly, there could be a written statement of agreement regarding the remedial goals. If parents and teachers were required to sign a document indicating that they approved of the objectives of the program, they might have a greater stake in the process. Also, teachers and parents might be asked to indicate in writing any concerns they have about the remedial goals.

At the present time, the Learning Centre is re-considering the procedures to be used in setting goals for clients and accountability to parents and teachers. The procedures discussed in this section are being given serious consideration.

CHAPTER IV: PUBLIC AND PROFESSIONAL EDUCATION

A. Objectives of the Education Program

The education program at the Centre is concerned with communicating the knowledge acquired at the Centre and elsewhere to professionals, parents, teachers and the public generally. As part of an integrated program of service and research, the education program should reflect what has been learned in these other activities of the Centre.

The education program at the Learning Centre has focused on three general areas:

1. Providing information to the public and to professionals through lectures, seminars, and by providing access to resource materials and books relevant to the assessment, treatment, and the general understanding of learning disabilities.
2. Providing full year courses, short courses and intensive workshops for professional training of teachers, psychologists, and others involved directly with the learning disabled.
3. Providing practicum experience in assessment and individual and group treatments at the Learning Centre to university students in various faculties related to the Learning Disabilities field - primarily Education, Psychology, Social Work, and Medicine.

B. Components of the Education Program

1. The Learning Disability Resource Library

The Learning Centre is developing a learning disability resource library which will enable teachers, other professionals who work with the learning disabled, and members of the public to borrow resource materials. The funds to purchase resource materials have been provided by the Junior League of Calgary. In addition to the Junior League donation, the University of Calgary and the Calgary and District Foundation have contributed funds to pay for the services of a professional librarian to staff the library. The two private learning disability schools, Foothills Academy and Calgary Academy, are also actively involved in planning the library. It is anticipated that the Library will open in Spring, 1984. It will be located on the premises of the Learning Centre.

2. Professional Education Courses Offered for Credit at the University of Calgary

The most significant contribution of the Learning Centre in the area of credit courses has been the introduction of a practicum course in the assessment and treatment of learning disabilities and subsequent special education major in learning disabilities offered for M.Ed. and M.Sc. students through the Educational Psychology Department at the University of Calgary. Training specifically in learning disabilities had not been available prior to the opening of the Learning Centre. The following list describes the credit courses offered by Learning Centre personnel.

a. Title: "Practicum Course in the Assessment and Treatment of Learning Disabilities" (Edps 546).

Instructor: Dr. M. Samuels, Executive Director of the Learning Centre and Ms. D. Alexander (Winter, 1983), Learning Centre Psychologist, seconded from Alberta Children's Hospital.

Description: This course includes classroom lectures in the assessment and treatment of learning disabilities, and direct experience assessing and treating learning disabled children. Most students have fulfilled their practicum requirement at the Learning Centre or in learning disability classes of the Calgary Board of Education.

b. Title: "Introduction to Special Education" (Edps 222).

Instructor: Ms Audrey Roadhouse, A Learning Centre Teacher, seconded from the Calgary Board of Education.

Description: Undergraduate level overview of special education.

c. Title: "Summer Practicum Course" (Edps 592.01)

Instructor: Learning Centre Staff under the supervision of Dr. M. Samuels (1980) or Ms. D. Alexander (1981).

Description: A month-long course in which students receive 5 hours of daily instruction in addition to practicum experience in the assessment and treatment of learning disabilities. Each student is assigned to a specific child and also to a specific treatment group for the month. Thus, this course has a dual purpose - the training of special education students, and an assessment and treatment program for learning disabled children. The practicum students are responsible for the educational assessment of the child and for the implementation of a treatment program.

d. Title: "Introduction to Instrumental Enrichment"

Instructors: Dr. M. Samuels and Ms. A. Roadhouse in collaboration with Dr. M. Waksman of the University of Toronto.

Description: An introduction to Feuerstein's program of cognitive modifiability. The course included both the theory of Instrumental Enrichment and demonstrations of the use of the instruments.

e. Title: "Advanced Level Instrumental Enrichment"

Instructors: Dr. M. Samuels and Ms. A. Roadhouse in collaboration with Dr. R. Smith of Vanderbilt University.

Description: The continuation of the introductory level course described above.

3. Professional Education Non-Credit Courses Offered at the Learning Centre

a. Title: "The Learning Potential Assessment Device".

Instructors: Dr. M. Samuels and Dr. Robert Harth, National College of Education, Evanston, Illinois.

Description: Introduction of Feuerstein's dynamic assessment model. Participants received lectures in the theory of this assessment method and also experience using the assessment instruments.

b. Title: Instrumental Enrichment Level I

Instructors: Ms. A. Roadhouse and Ms. S. Pace, Learning Centre teachers seconded from the Calgary Board of Education.

Description: Participants received instruction and practical experience in the theory and implementation of Feuerstein's Instrumental Enrichment.

c. Title: Instrumental Enrichment Level I and II.

Instructors: Ms. A. Roadhouse, Ms. S. Pace and Ms. Jane Towery, visiting lecturer from Louisville, Kentucky.

Description: Theory and implementation of the Instrumental Enrichment program.

4. Professional Education Workshops Offered by External Speakers

There is currently a wide range of opinion regarding the causes and methods of treating learning disabled persons. Part of the Learning Centre Education program has been to provide a forum for the diverse views of distinguished researchers and practitioners.

a. Title: "Learning Potential"

Presentor: Dr. Reuven Feuerstein, Hadassah Wizo Research Institute, Jerusalem.

Date: January, 1980.

b. Title: "Learning Strategies in Adolescents"

Presentor: Dr. Donald Deshler, Institute for the Study of Learning Disabilities, University of Kansas.

Date: June, 1981.

c. Title: "Cognitive Behaviour Modification"

Presentor: Dr. Donald Meichenbaum, University of Waterloo.

Date: December, 1981.

d. Title: "Social Skills in Learning Disabled Children"

Presentor: Dr. Tanis Bryan, University of Illinois at Chicago Circle.

Date: June, 1982.

e. Title: "Learning Disabilities" (co-sponsered with Alberta Children's Hospital)

Presentor: Dr. Melvin Levine, Harvard University Medical School.

Date: September, 1982.

f. Title: "Learning to Learn: A program for teaching learning strategies to learning disabled children".

Presentor: Dr. Jean Schumaker, Institute for the Study of Learning Disabilities, University of Kansas.

Date: January, 1983.

g. Title: "The Learning Potential Assessment Device and Instrumental Enrichment".

Presentor: Dr. Reuvan Feuerstein, Hadassah Wizo Canada Research Institute, Jerusalem.

Date: February, 1983.

h. Title: "Diet, Environmental Sensitivities, and Behaviour: a talk for parents, teachers and health professionals".

Presentor: Dr. John Maclennan, Hamilton, Ontario.

Date: April, 1983.

5. Inservice Presentations

A large segment of the educational activity of the Learning Centre staff has consisted of inservice workshops offered primarily to teachers in the two Calgary School Systems. During the first year of the Learning Centre's operation sixty such presentations were made to acquaint teachers with the activities of the Learning Centre. In 1981-82 twenty-six presentations were given. Fourteen of them were concerned with a specific topic in learning disabilities (e.g., learning strategies, remdial math techniques), and twelve were information sessions describing the activities of the

Centre.

For the purpose of this evaluation report, data were obtained from a randomly selected subset of inservice presentations given over the three years of the evaluation period, described as follows:

a. Title: "Learning Centre Services"

Presentors: Ms. A. Roadhouse and Ms. J. Beaton

Date: March, 1981

b. Title: "Drugs and Hyperactivity"

Presentor: Richard Conte

Date: October, 1981

c. Title: "Instrumental Enrichment"

Presentor: Ms. A. Roadhouse

Date: October, 1981

d. Title: "Early Identification of Learning Disabilities"

Presentor: Ms. R. Humphreys.

Date: January, 1982

e. Title: "An Overview of the Learning Centre"

Presentor: Dr. M. Samuels

Date: January, 1982

f. Title: "Study Skills and Learning Styles"

Presentor: Ms. S. Pace

Date: January, 1982

g. Title: "An Introduction to Learning Disabilities"

Presentors: Ms. S. Pace

Date: February, 1982

h. Title: "Language Compensation Program"

Presentor: Ms. R. Humphreys

Date: March, 1982

i. Title: "The Learning Centre Program"

Presentor: Ms. M. Hall

Date: March, 1982

j. Title: "Instrumental Enrichment"

Presentor: Ms. A. Roadhouse

Date: March, 1982

k. Title: "Learning Disabilities in the Classroom"

Presentor: Ms. R. Humphries

Date: April, 1982

l. Title: "Instrumental Enrichment Overview"

Presentor: Ms. S. Pace

Date: November, 1982

m. Title: "Understanding Assessments"

Presentors: Ms. D. Alexander and Ms. A. Parker

Date: March, 1983

n. Title: Description of the Learning Centre and an Outline of Learning Disabilities"

Presentors: Ms. E. Dever and Ms. T. Malloy-Miller

Date: May, 1983

o Title: "Introduction to the Learning Centre"

Presentors: Ms. A. Roadhouse and Ms. D. Alexander

Date: March, 1983

6. Presentations at Conferences

Dissemination of work being carried out at the Learning Centre is also achieved through presentations at local, national and international conferences. Conference presentations have been made in Vancouver, Edmonton, Winnepeg, Minneapolis, Montreal, Rochester, N.Y. and Jerusalem.

C. Evaluation Methods

The Education program was evaluated by means of questionnaires which were given to participants who attended educational functions. There were three general classes of information asked with the questionnaires:

a. Did the content of the presentation or course meet the needs of the participants?

b. Was the instructor an effective communicator?

c. Was the course well-organized?

Respondents were asked to indicate their degree of agreement with each of the assertions made in the questionnaire by using the following scale: strongly agree, mildly agree, mildly disagree, strongly disagree, cannot answer.

D. Results

1. Course Evaluation

Course Evaluation questionnaires were obtained from students (n=37) who participated in the two summer practicum courses (Edps 592.01) held in July, 1980, and July, 1981.

Table 19 shows the data pertaining to the students' perceptions of the instructors. The most positive responses were for questions concerning the preparation and commitment of the instructors. For example, 75% agreed that the instructor used effective instructional techniques; 83% agreed that the instructor displayed command of the subject area; and 87% agreed that the instructor showed commitment to the subject material.

The least positive responses were obtained for questions pertaining to the efficient use of class time (65% agreed) and the quality of the feedback (61% agreed).

With respect to the course content and requirements, the most positive responses pertained to the size of the group (83%), to the usefulness of the course with respect to the professions of the participants (90%), and to the fact that participants felt their time was well spent (78%). The least positive responses concerned the reasonableness of the work required for the amount of

TABLE 19

Questionnaire Responses from the Summer Practicum Course

	Percent in Agreement
Size of the group was appropriate	79
The instructor used effective instructional techniques	75
The instructor displayed command of the subject area	83
The instructor showed commitment	87
Instructor stimulated student interest	67
The instructor used class time well	65
Instructor made the objective clear	75
The course was up to date	74
My time was well spent	78
I would recommend such a course to my colleagues and friends	75
Materials, equipment were available	85
The responsibilities of course participants were clearly defined	65
The course requirements were reasonable in terms of difficulty	70
The requirements were reasonable in terms of the time required	51
There were adequate practical experiences/ activities available	80
Good balance between theory and practice	53
I received useful feedback	61
I will be able to use the content of workshop in my own work	90
Audio-visual materials and handouts were clear and meaningful	78

time available (51%), and the balance of theory and practice (53%).

2. Workshops

For the purpose of this report data from an Instrumental Enrichment workshop given by Learning Centre teachers, Audrey Roadhouse and Sandra Pace, are presented. The workshop was given in October, 1982 and was attended by 34 participants. Eighteen of the participants were teachers and the remainder were other professionals including psychologists, occupational therapists and educational consultants. The average duration of employment of the audience was 10.3 years.

The questionnaire data are shown in Table 20. As in the previous data, the answers pertaining to the knowledge and instructional ability of the instructors were very positive. For example, 97% of the participants agreed with the assertion that the instructors used effective instructional technique, that the instructors displayed command of the subject area, that the instructors showed commitment to the teaching assignment, and that the instructor stimulated student interest.

Responses regarding the course content were also very positive. For example, 100% agreed that the course content was up to date, and 100% agreed that they would be able to use the materials provided in the course for

TABLE 20

Analysis of Questionnaire Responses for the Instrumental Enrichment Workshop, October, 1982

	Percent in Agreement
Size of the group was appropriate	79
The instructor used effective instructional techniques	97
The instructor showed command of the subject area	100
The instructor showed commitment	97
Instructor stimulated student interest	100
The instructor used class time well	87
Instructor made the objectives clear	94
Workshop was up to date	100
My time was well spent	97
I would recommend such a workshop to my colleagues and friends	100
Materials, equipment were available	73
The responsibilities of course participants were clearly defined	81
The course requirement were reasonable in terms of difficulty	97
The requirements were reasonable in terms of time required	93
There were adequate practical experiences/activies available	88
Good balance between theory and practice	88
I received useful feedback	65
I will be able to use the content of workshop in my own work	100
Audio-visual materials and handouts were clear and meaningful	84

their own profession. 87% agreed that there was a good balance between theory and practice (as compared to 53% agreement for other workshops and courses). Also, there were indications that the requirements were more reasonable for this workshop than they were for the courses reported above. For example, 96% agreed with the assertion that the course requirements were reasonable in terms of the time required and 96% agreed that the difficulty of assignments was appropriate. The least positive responses were for the questions pertaining to the availability of materials (73%) and the usefulness of the feedback from the instructors (65%). Some of the participants noted on their response forms that the lack of availability of the materials was not the fault of the Learning Centre staff, but was due to a delay in the shipment of materials from the publisher.

3. Inservice Presentation

Responses were obtained from 187 participants who attended 15 inservice presentations conducted by Learning Centre staff. Seventy-five percent of the questionnaires were completed by teachers, including classroom, resource and visiting teachers; 10 percent came from homemakers and 5 percent from guidance counsellors. The rest of the respondents were either physicians, principals, or university students. When asked why they had attended the presentation, fourty-seven percent of the respondents replied that it had been arranged for them.

The results of the questionnaire data are summarized in Table 21. It indicates that the inservice presentations have been very well received. As in the previous two sections, the most positive responses concerned the preparation (98%) and commitment (98%) of the instructor. In addition, 92% thought that they could not have heard such a presentation from any other source. Less positive responses were obtained regarding the balance of theory and practice (77%), the quality of the audio-visual materials (77%) and the relevance of the presentation to the professional interests of the respondent (78%).

E. Discussion

This has been one of the heaviest areas of activity for Learning Centre staff. Based on the large number of requests for workshops which have been received, there appears to be a great need in the community for more program ideas, and more general information on learning disabilities.

Analysis of the responses of participants at inservice presentation, courses and workshops has indicated that each of these Learning Centre functions has been received very positively. Undoubtedly, the most positive responses have been with regard to the effectiveness of the Learning Centre staff as teachers.

TABLE 21

Questionnaire Responses to Inservice Presentations

	Percent in Agreement
Size of group was appropriate	86
Presenter used effective instruction techniques	89
Presenter displayed command of subject	98
Presenter showed commitment to the presentation	98
Presenter stimulated interest in topic	88
Time alloted for the presentation was well used	84
Presentation was up to date	86
Presentation was relevant to my work	78
My time was well spent	81
Good balance between theory and practice	77
Elements formed coherent package	89
The presentation extended by knowledge	90
Audio-visual materials were clear	77
I would be able to obtain the same information elsewhere	8

Also, the reactions to the content of the presentations have been very positive. The major exception to this statement was with respect to the balance of theory and practice in the presentation or course. Comments received from the participants indicated that they would have liked the presentations and courses to be more practical and less theoretical. This might be expected given that most of the participants at these functions have been classroom teachers. However, in the data presented from the Instrumental Enrichment Workshop, the responses to this question were much more positive than for either the inservice presentations or courses.

There was also some concern expressed by participants concerning the organization of the inservice workshops and courses. The results obtained indicated that Learning Centre staff should exercise more caution in determining the size of the audience at presentations and the amount of work required of students in courses.

The core of the Learning Centre workshop program has been Feuerstein's LPAD and Instrumental Enrichment, and as of this writing the demand for these workshops is still very high. However, in the immediate future there are plans to expand workshops into other areas. One step in this direction is that Karen Hiebert, a Learning Centre teacher seconded from the Calgary Board of Education, is preparing a survey questionnaire to be sent to personnel in both school boards with interests in special education. The purpose of the survey will be to obtain suggestions for future Learning Centre workshops. A second step is that plans have been made to present workshops in which other programs developed at the Learning Centre (such as animation film-making and orienteering) will be taught to professionals.

CHAPTER V: THE LEARNING CENTRE MODEL

A. Evaluation Questions

In this evaluation report three aspects of the Learning Centre model are highlighted:

1. Do the components of the Learning Centre mandate (research, education and service) function as a cohesive whole?
2. Is a multidisciplinary approach appropriately used in conducting treatment?
3. Is the consortium structure effective in promoting the Learning Centre mandate?

The primary data source which was used to obtain information on the functioning of the Learning Centre model was a questionnaire completed by members of the Board of Directors. This questionnaire focussed on three issues:

1. The goals of the Learning Centre,
2. The functioning of the consortium,
3. Future Directions of the Centre.

The specific questions are listed as part of the data presentation which follows.

B. Results

This questionnaire was sent to 18 past and present board members. Twelve questionnaires were returned from members who represented the following agencies (the number of questionnaires returned from each agency is shown in parenthesis): University of Calgary (2), Calgary Board of Education (2), The Calgary Catholic Board of Education (1), The Calgary Association for Children and Adults with Learning Disabilities (2), The Calgary Board of Health (1), Alberta Children's Hospital (1), parent members (3).

The members who returned the questionnaires had served on the Board for an average of 26.7 months. The maximum length of membership was calculated to be 42 months (December, 1979 to June, 1983). Six of the respondents had served on the Board Executive, seven had served on a Board Committee and six represented the four agencies which made a financial contribution to the Leaning Centre. In the data presentation which follows each question which appeared in the questionnaire will be presented; a summary of the answers received will be given immediately following each question.

1. Why did your agency become a member of the CSSLD?

Nearly all the respondents replied that the reason for membership was that the goals of the CSSLD coincided with those of their own agency. One replied that the appeal stemmed from the possiblity of a medical/education interface, several mentioned the service - research mandate, two wished to upgrade facilities for the treatment of learning disabled persons.

2. What aspect of the Learning Centre's mandate is of most interest/importance to your agency?

Several respondents gave more than one answer. Five responses mentioned research, five specified service and three teacher training. One mentioned early identification.

3. In general, do you agree that the Learning Centre has fulfilled the expectations of your agency?

agree strongly	agree mildly	disagree mildly	disagree strongly
4	4	3	1

4. In what areas has the Learning Centre fulfilled the expectations of your agency?

Three respondents mentioned teaching and research, five indicated service, two suggested that it was the fact that the Learning Centre offered parents an alternative opinion to that of the regular school systems. Three did not respond.

5. In what areas has it failed to fulfill your agency's expectations?

Two members commented that there had been insufficient feedback and liaison with the respondent's agency. One indicated that the level of service delivery was too low. Two mentioned that there had been inadequate research and demonstration. One member felt that the Learning Centre had had insufficient impact on the community. One commented that there had been insufficient impact on teacher training, and on services for adults. Two mentioned that insufficient funding had been the primary cause for failure to fulfill the agency's expectations, while one mentioned that inability to generate sufficient funds has been the area of failure. Three did not respond.

6. Comment on any cooperative projects or programs your agency has undertaken with the Learning Centre. (Did it assist your organization? Was it successful?)

Two mentioned that the Instrumental Enrichment Research Project at Van Horne had been successful. Two mentioned summer camp (a cooperative venture of the CACLD and the Learning Centre), three mentioned teaching and inservice and one stated that the volunteer project was quite successful.

7. In what areas would you like to see future cooperative projects between your agency and the Learning Centre?

Three responded that they would like to see this happen in the area of inservice, teaching or staff development, two mentioned research and evaluation, and one stated that they would like to see some type of parent advocacy project. One wanted greater dialogue concerning service delivery. One wanted more input in developing adolescent programs. Four did not answer.

8. Do you agree that the consortium structure of the CSSLD has worked well?

agree strongly	agree mildly	disagree mildly	disagree strongly
7	3	2	0

9. In your view what are the principal advantages of the consortium model?

Nearly all the respondents replied that it was the possibility of cooperative activities between agencies which had the greatest appeal.

10. The principal disadvantages?

Seven indicated that the consortium structure could be unwieldly, because of the diversity of interests represented. One was concerned that there was a lack of business skills on the consortium. Four did not answer.

11. Is there an alternative model you would prefer?

Eight responded negatively, while two recommended that the Centre become part of an "accepted" institution. One wanted greater parent input and one desired more input from the business community.

12. Do you believe that the original aims and goals of the society are still relevant and important?

agree strongly	agree mildly	disagree mildly	disagree strongly	no response
10	1	0	0	1

13. How would you modify the goals?

Nine replied that they wouldn't, one responded that there should be more research, one indicated that direct service should become a goal in itself, rather than just part of the larger context of research-demonstration, and one responded that the mandate was too large.

14. Do you agree with the following statement "the level of financial support has been sufficient to meet the aims and goals of the society"?

agree strongly	agree mildly	disagree mildly	disagree strongly
0	1	4	7

15. What change in professional staffing positions would you like to see?

Only five respondents answered. One wanted more teachers, assessment staff and research staff, one wanted more evaluation researchers, two indicated that there should be more disciplines, such as pediatrics, and one commented that the level of funding has not been achieved to provide a reasonable quantity of staff for the Learning Centre

16. What is the single most important development for the Learning Centre in the immediate future?

Six responded that the need for a sounder funding base was the most pressing issue. One suggested that it was important for the Centre to become an alternative school. One respondent felt that the effectiveness of the Board and staff was the area of greatest concern, and one thought that it was important to put more effort toward the pursuit of research and demonstration projects. One commented that there should be more liaison with teachers.

C. Discussion

The findings from the board questionnaire may be summarized with three general statements. First, there was considerable diversity of opinion regarding the function of the Centre which was held in highest regard. Some members were primarily interested in service; others were more concerned with the teaching and research mandate. There was some indication that the diversity of opinion was problematic: in seven of the twelve questionnaires which were returned, respondents commented that the principal disadvantage of the consortium was that it could be unwieldly - that the diversity of opinion was too great to enable this body to function efficiently. Nevertheless, ten of the twelve respondents agreed that the consortium has worked well and that its greatest benefit is the possibility of cooperative activities. Second, eleven of the twelve respondents indicated that the original goals and aims of the society were still relevant. However, this statement should be considered in light of the fact that there is not total agreement on the nature of the goals. Third, there was general agreement that the level of financial support had not been sufficient to fulfill the mandate of the Centre.

CHAPTER VI: GENERAL DISCUSSION

This section will focus on issues which are concerned with more than one aspect of the Learning Centre mandate:

1. The multimandate of teaching, research-demonstration, and service,
2. The multidisciplinary nature of the Learning Centre,
3. The consortium structure of the Learning Centre.

A. The Multimandate of Teaching, Research-Demonstration, and Service

As specified in the goals of the Learning Centre, these three aspects of the mandate should function as an integrated whole. New ideas in research should find their way into clinical practice, the realities of the treatment situation should guide research, and the experience gained in research and clinical practice should form the basis of the public and professional education programs.

The area in which the multimandate has worked most effectively centers around Feuerstein's Instrumental Enrichment. As a treatment program, I.E. has been offered five times: a five month pilot project for adolescents, a two-year research project at Van Horne School, The I.E. for Parents Group, and the I.E. for Pre-adolescent Group, both of which have run for one year at this writing, and a one year I.E. class which was taught by Sandra Pace, a Learning Centre teacher seconded from the Calgary Board of Education, at Dr. Carl Safran School. Three of these programs have had a research focus: the Van Horne project, I.E. for Parents, and I.E. for pre-adolescents. The Van Horne study was an Alberta Education funded research project and the I.E. for Parents and I.E. for pre-adolescents were both pilot studies which produced impressive treatment gains. Finally, in terms of the education mandate of the Learning Centre, the I.E. program has been the subject matter of three training workshops which were sponsored by the Centre, and two courses offered at the University of Calgary. Over 200 professionals have learned how to implement the I.E. program at these workshops. Thus, there have been I.E. programs in all three areas of the Learning Centre mandate. However, there has been insufficient time for the three areas of the mandate to have had a great deal of mutual influence. For example, none of the I.E. research projects has been completed at this point, so the degree to which the outcome of these studies has influenced the way I.E. is taught at workshops or how it is implemented as a treatment program is still very limited. The mandate of the Centre requires that this type of cross-fertilization should occur. Also, funds have not been available to monitor the programs which have been implemented by those trained at Learning Centre I.E. workshops. Systematic data collection could provide valuable information on the efficacy of the I.E. program.

It is anticipated that there are other areas in which the functioning of the multimandate will soon be evident. The following projects are currently in this stage of development:

1. The Method of Repeated Readings in the Treatment of Disabled Readers

This is a funded research project (Alberta Education) which is being conducted in collaboration with the Foothills School Division. The focus of the Learning Centre work on repeated readings has been to demonstrate that it can be used with severely disabled readers. The purpose of this study is to determine if the procedures developed at the Learning Centre can be used by classroom and resource room teachers to enhance reading skills. If this project is successful, then the information from the study will be used to develop an inservice workshop on repeated readings, and the program will be published for dissemination to teachers in the province and elsewhere.

2. The Learning Potential Assessment Device as a Diagnostic Tool for Children with Learning Problems

In this study the reliability of the LPAD will be the major focus. Substantial numbers of professionals in

Calgary and elsewhere are being trained to use the LPAD. However, there are many fundamental questions about the LPAD which have not been dealt with in previous research. This study will attempt to determine if the LPAD procedures are sufficiently well-specified so that it can be used reliably by different examiners. A by-product of this study will include clearer ideas of the type of training needed so that LPAD examiners can function reliably. This information will then be published and also integrated into the Learning Centre LPAD training workshops.

3. The Treatment of Attention Disorders in Language Deficient Children

In this study an attempt is being made to develop methods of teaching cognitive self-control to language deficient children with attention problems. Pilot work at the Learning Centre suggests that the use of gestural symbols (taken from American Sign Language) may be effective self-cuing devices in these children. If this form of treatment is effective, it will form the basis of a publication and a workshop presentation on the treatment of attention disorders.

4. The Language Learning Disability Class

The purpose of this study is to contrast two methods of treatment for Division I, language disordered children. One group of children will be mainstreamed into regular classes; the other group will be placed in a full-time language-learning disability (LLD) class. The LLD classes will be relatively homogeneous in the sense that all the children will be severely language deficient.

In this study two hypotheses are being contrasted. First, it is anticipated that the children in the LLD class will make greater gains in language acquisition and perhaps academic skill generally because in a relatively homogeneous class of language deficient children, it will be easier for the teacher to gear the language of instruction to the language skills of the students. The alternative hypothesis is that in mixed classes the students will feel less "singled out", and that these children may make greater gains in terms of social development.

The outcome of this study should enable Learning Centre staff to make recommendations regarding the advantages and disadvantages of the alternative forms of treatment for language disorderd children. This information will be disseminated through published reports and incorporated into inservice presentations on language disorders.

B. Multidisciplinary Research and Treatment

As stated in the goals of the Learning Centre, the treatment of most learning problems involves many areas of a person's life. Learning problems are not restricted to the classroom situation, but involve family life, peer relationships and the workplace. As such, the assessment and treatment of learning problems should engage the whole person.

The primary data source with respect to this issue were the recommendations made in the assessment reports. These data indicated that most recommendations were concerned with three areas: academics, processing, and inter-agency goals. Fewer recommendations were made in the personal-social or compensatory skills areas, and few were concerned with family issues.

At one level this information is difficult to interpret in the absence of additional information on the needs of the clients. Thus, it is possible that few family recommendations were made because they would have been inappropriate for this sample of clients. However, this is difficult to reconcile with the quite well-established view that the family and emotional factors can be important determinants of the outcome of an intervention program. Therefore, the Learning Centre staff should be especially concerned that these areas are being adequately dealt with in both diagnostic and treatment contexts. Very likely, the type of recommendations being made on assessment reports reflect the background of the Learning Centre staff. Most have a background in either education or psychology. Only three staff have had extensive training in counselling or family therapy. It may be that there has been insufficient consultation on matters pertaining to family and counselling issues. Alternatively, it may be that there is much more family and counselling work which is not reflected in the assessment report recommendations.

Obviously, this issue needs further investigation. It would be beneficial to the staff of the Learning Centre if there were attempts to document the needs of clients in the areas of family intervention and counselling. Second, the staff will be advised to make sure that any family counselling work is recorded in the clients file. It could be that in many cases the family issues do not emerge until after the treatment program recommendations have been completed. To deal with this possibility, a mechanisms is needed to update the recommendations.

These issues will be raised with the staff at the "in-house" conferences on assessment. A set of guidelines will be developed regarding procedures to follow in investigating family and counselling concerns.

C. The Consortium Structure of the Calgary Society for Students with Learning Difficulties

One of the unique features of the Learning Centre is that its activities are overseen by representatives of eight agencies which are concerned with the treatment of learning disabled persons. This arrangement offers many possibilities, especially with regard to the city-wide integration of services for the learning disabled. The primary data source used for this section was the results of the questionnaire sent to the Board of Directors of the Learning Centre.

Three issues emerged from the analysis of the questionnaire responses. First, there was a division of opinion regarding the function of the Learning Centre which the consortium members held in highest regard. Some members were primarily interested in the service provided by the Centre; others focussed more on teaching and research. While these opinions are within the scope of the Learning Centre mandate, there was some indication that this range of opinion posed problems: in seven of the twelve questionnaires which were returned, respondents commented that the principal disadvantage of the consortium was that it could be unwieldy - that the diversity of opinion was too great to enable this body to function efficiently. It is quite reasonable that the members of a consortium have different interests, but it would seem necessary that all agree on the fundamental aims and direction of the organization. There have been relatively few meetings of the Board of Directors with the staff of the Learning Centre to ensure that everyone has the same goals and concerns in mind when considering the activities of the Learning Centre.

Three actions have been planned for the coming year to deal with these problems. First, there are a number of working meetings planned between the Board of Directors and the Staff. Second, a number of joint Board-Staff committees are being formed to deal with the administration of the Learning Centre. These include committees for research review, ethics, fundraising, facilities, personnel, and public relations. The plan is to have all Board and Learning Centre staff on at least one committee. Third, increased dialogue between consortium agencies and board members will ensure a common understanding of the goals of the Learning Centre.

The second generalization to be derived from the questionnaire is that eleven of the twelve respondents indicated that the original goals and aims of the Learning Centre are still relevant and important. While this result is encouraging, it should be kept in mind that there may not be general agreement regarding the nature of the goals of the Learning Centre.

Third, one theme which ran through the answers of most respondents was that there has been insufficient financial support for the Centre. The general comment was that there were not enough staff to carry out the broad mandate of the Learning Centre. At the present time the bulk of the operating expenses of the Centre are provided by Alberta Education and by members of the consortium. The Learning Centre Board of Directors has maintained that other government departments should be involved in supporting the Centre. The mandate of the Centre is much broader than Education, and includes the interests of Advanced Education, Manpower, Social Services, and Hospitals. An intragovernmental committee was formed with representatives from each of these departments and the Department of Education to consider long-term interdepartmental funding. While each of these departments has expressed interest in the activities of the Centre, none, other than the Department of Education, has made a firm financial commitment. A sufficient base of funds is considered critical by all board respondents to ensure that the Learning Centre can meet its goals and objectives.

D. Cautions in Interpretating the Data

Perhaps the most glaring shortcoming in this evaluation is that feedback concerning the efficacy of treatment programs was obtained only from parents and teachers of clients. This information would have been much more complete if clients were given the opportunity to assess the quality of the service received.

Second, for most of the treatment programs which have been conducted, there were so few subjects available that it was not possible to perform statistical analyses of the data. For the most part the programs which were presented were only conducted on one occasion. Before any solid conclusions can be made regarding the efficacy of these programs, it is extremely important that they be repeated several more times. This highlights the need for an expanded research program to collect the required data.

Third, data concerning progress of individual children seen at the Learning Centre has not been included. Evaluation of the Learning Centre intervention programs cannot be evaluated without such long-term followup data.

E. Recommendations

1. Research Program

a. There should be more extensive investigation of the role of parents as teachers in remedial programs for learning disabled students.

b. Future research projects should attempt to provide information on the proper balance between academic remediation and strategies training.

c. The pilot projects which have been completed should be implemented and evaluated as part of a regular school curriculum.

d. The Learning Centre should examine the long-term effects of remediation by following the progress of clients for several years.

2. Service Program

   a. There must be greater efforts taken to insure that parents and teachers are more involved in planning and evaluating treatment programs.

   b. Assessment report recommendations should include clearly stated program objectives which can serve as a basis for evaluation

   c. Learning Centre staff should conduct "in house" reliability studies of assessment results.

   d. A committee should be formed to review assessment reports and program recommendations.

3. Public and Professional Education

   a. A survey should be conducted in order to determine the needs of local professionals in the area of Learning Disabilities.

   b. There should be efforts made to integrate the Education program with the needs of consortium members.

   c. There should be greater integration of the education programs with the clinical and research programs thereby providing more "in depth" training of professionals in this field.

4. The Learning Centre Model

   a. To the present time the multimandate has functioned most effectively in the area of Feuerstein's Instrumental Enrichment. It is important for the multimandate to become operational for other programs. The pilot projects could serve as the basis for expanding in this area.

   b. According to the analysis of assessment report recommendations, most of the activity of the Learning Centre has been academically oriented. Few recommendations concerned family issues or personal-social goals. It may be advisable to provide additional training for staff so that they will be able to operate more effectively in these areas.

   c. Analysis of the Board of Directors Questionnaire indicated that there exists a wide range of opinion regarding the priorities of the Learning

Centre. There should be regular meetings between Board and Staff to promote greater understanding and to formulate meaningful goals and objectives.

d. Analysis of the Board of Directors Questionnaire indicated that there was insufficient financial support for the Learning Centre to fulfill its mandate. The Board must be diligent in pursuing a secure financial future for the Learning Centre.

F. Summary

This evaluation report was conducted in order to describe and evaluate the initial three years of the operation of the Learning Centre. Analysis of data presented in this report has led to the following conclusions.

1. The Learning Centre has established itself as a credible service organization. This conclusion was confirmed by the positive feedback received from both parents and teachers of clients. It was suggested that in future work there should be attempts made to obtain feedback from the clients themselves and not to rely exclusively on the reports of parents and teachers.

2. The Learning Centre has made a valuable contribution in the area of public and professional education. The feedback received from participants indicated that Learning Centre education functions were regarded as informative, that the staff presenting the information were knowledgeable and effective communicators. There

were problems noted regarding the organization, and requirements of some of the courses and workshops. It is anticipated that the information from this report will lead to improvements in the courses and workshops which are offered.

3. There were indications that the various areas of the multimandate of teaching, research-demonstration, and service are beginning to function as a cohesive whole. To date, this has been largely restricted to the work centered on Feuerstein's Instrumental Enrichment. It is important for this type of integrated activity to take place in other content areas.

4. It appears that the area in which most work needs to be done is in implementing multidisciplinary nature of the treatment service. The data presented in this report suggested that most emphasis has been placed on educational concerns, and relatively little on family issues or emotional factors. A series of meetings with the Learning Centre staff is planned to deal with these issues.

5. There is evidence that financial constraints are severely limiting the ability of the Learning Centre staff to implement the mandate. The scope of the Learning Centre mandate requires that a broad range of clinical disciplines must be represented. In addition,

an expanded research staff is needed in order to insure that the clinical work which is undertaken is performed in a controlled manner with appropriate objective measures. In order to attract a high quality professional staff, the Learning Centre must have a relatively secure financial outlook.

Addendum to the Report: Evaluation of Diagnostic Tests

At the request of the external evaluator, additional information is provided in this section on diagnostic tests which were used at the Learning Centre. The purpose of this analysis was to determine which tests were most useful in performing diagnostic assessments.

Procedure: To obtain this information, staff members were asked to list 15 diagnostic tests which they used most frequently. Subsequently, a number of questions were asked about each of the tests listed, as follows:

1. The test is valid; i.e., it provides information on those functions which it purports to test.
2. The test results are useful in planning a remedial program.
3. The test is easy to administer.
4. The test is easy to score.
5. The test results are easy to interpret.

Each of these statements was evaluated in terms of the following set of response alternatives (the numbers in parentheses indicate the numerical value assigned to each alternative):

(1). Strongly disagree
(2). Mildly disagree
(3). Mildly agree
(4). Strongly agree

In addition staff were asked to indicate the percentage of clients given each of the tests listed.

Results: Questionnaires were completed by 8 staff. Table 22 shows the number of staff who indicated they used the tests. Only those tests which were chosen by at least four staff have been included. The right-hand column gives staff estimates of the number of clients given each of the tests. The results indicate that in the view of the Learning Centre staff the Slingerland Screening Test was used for 49% of clients. The next most frequently used test was the Woodcock Reading Mastery Test, which, according to the estimates, was given to 33% of the clients. In Table 23 the tests are ranked according to frequency of use. The columns to the right indicate responses to the set of questions. A response of 4.0 indicates strong agreement with the assertion; e.g., the respondent strongly agrees with the assertion that the test is valid. The numbers in parentheses in each column indicate the rank of the test with respect to the assertion; e.g., in the "valid" column the number (1) next to the Slingerland Screening Test indicates that it was rated the most valid test of the 12 which are presented. Note that the Slingerland was rated both the most valid and the most useful in planning a remedial program. It was ranked considerably lower with respect to ease of administration (6), scoring ease (10), and

TABLE 22

Frequency of Use of Diagnostic Test Instruments

	Number of Staff Who Use Test	Percentage of Clients Who Are Given Test
Woodcock Reading	7	33.0
Detroit Test of Learning Ability	7	16.5
Woodcock-Johnson	6	17.0
Test of Written Language	6	30.4
Key Math	6	30.6
Peabody Picture Vocabulary	6	27.7
Test of Written Spelling	6	29.2
Ekwall Reading Inventory	6	29.3
Slingerland Screening	6	49.0
Test of Language Development - Intermediate	5	19.9
Token Test	5	8.8
Matching Familiar Figure Test	4	6.0

TABLE 23

Staff Evaluation of Diagnostic Assessment Tests

	Valid	Plan Remed.	Ease of Admin.	Easy to Score	Easy to Interpret
Slingerland Screening	4.0(1)	4.0(1)	3.6(6)	2.5(10)	2.5(8)
Woodcock Reading Mastery	2.7(9)	3.1(4)	3.5(7.5)	3.6(6)	3.0(6)
Test of Written Spelling	3.3(3)	3.0(5)	4.0(2.5)	4.0(2)	3.7(1)
Test of Written Language	3.2(5)	2.7(8)	3.7(5)	2.2(11)	3.0(4.5)
Key Math	3.7(2)	3.3(3)	4.0(2.5)	4.0(2)	3.2(3)
Peabody Picture Vocabulary	3.2(5)	2.5(9)	4.0(2.5)	4.0(2)	3.3(2)
Ekwall Reading Inventory	3.2(5)	3.4(2)	4.0(2.5)	3.8(4)	3.0(4.5)
Detroit Test	2.9(7)	3.0(6)	3.6(7.5)	3.4(7)	2.8(7)
Woodcock-Johnson	1.7(12)	2.3(11)	2.3(12)	1.8(12)	1.8(11)
Test of Lan. Dev. - I.	2.8(8)	2.8(7)	3.4(9.5)	3.2(8)	2.2.(10)
Token Test	2.6(10)	2.4(10)	3.4(9.5)	3.6(5)	2.6(9)
Matching Fam. Figures	2.2(11)	1.7(12)	3.2(11)	3.0(9)	1.5(12)
rho	.73	.77	.62	.19	.62

ease of interpretation (8). The Key Math was ranked as the second most valid test and the Test of Written Spelling was the third most valid.

The numbers at the bottom of each row indicate the magnitude of the rank order correlations between the replies to the assertion and the frequency with which the test was used. The results indicate that the validity and usefulness of the test in planning the remedial program accounted for the most variance in frequency of use (rho=.73, $p<.01$ and .77, $p<.01$, respectively). Ease of scoring accounted for the least variance in frequency of use (rho=.1[illegible], $p>.05$).

Discussion

The results of this analysis indicated that the Slingerland Screening Test is the most frequently used test, and it is perceived as the most valid and the most useful in planning remediation. It should be noted that there are other factors not considered in this analysis which may account for the frequency of usage. The Slingerland Screening Test attempts to assess the functioning of the information processing pathways which are common to a wide range of academic and other cognitive tasks. For example, it provides information on auditory and visual memory, auditory to visual memory, copying ability, and kinesthetic functioning among others. Quite obviously, a test which provides information on a broad range of functions would be used with a greater number of clients than a test which examines a specific function or skill, such as the Key Math or the Test of Written Spelling. The only other test in the sample which attempts to assess a wide range of functions is the Woodcock-Johnson Psychoeducational Battery. In addition to providing information on the auditory and visual channels, this test also includes subtests which examine higher level functions such as reasoning ability. Even though the Woodcock-Johnson is extensively normed, in contrast to the Slingerland which has none, the former test was given the lowest average rank across all the questions which were asked. Also, in terms of frequency of use, the Slingerland was ranked first, while the Woodcock-Johnson was ranked ninth.

The only other tests included in the analysis which assess overlapping functions were the Woodcock Reading Mastery Test and the Ekwall Reading Inventory. The Ekwall Reading Inventory assesses reading ability by examining an examinee's ability to read and answer question about a high interest passage. The Woodcock Reading Mastery Test examines performance on tasks which are somewhat removed from ordinary reading. For example, examinee's are required to read nonsense words and fill in missing words in cloze passages. The Woodcock is a well-normed test, while the Ekwall is not normed. While the results of the analysis indicated that the Woodcock was used more frequently (it was ranked second, the Ekwall ranked seventh), the Ekwall was given a higher rating on each of the questions. In other words according to the criteria examined in the questionnaire, the Ekwall was thought to be more valid and generally more useful than the Woodcock, but it was used less frequently. The reasons for the discrepancy are not clear. It may be that for assessing an academic skill such as reading, clinicians find it more important to have good norms available than for tests, such as the Slingerland, which assess processing skills. Alternatively, the Ekwall may be used infrequently because it is a relatively new test.

To summarize, the analysis of test instruments indicated that the two most important predictors of test usage were perceived validity, and perceived utility in planning a remedial program. The Slingerland Screening Test was rated highest with respect to both dimensions. Comparisons of the ratings of two sets of comparable tests (The Slingerland and the Woodcock-Johnson Psychoeducational Battery, and the Ekwall Reading Inventory and the Woodcock Reading Mastery Test) indicated that extensive norming was not an important factor in determining the value of the test. The generalization to be derived from these analysis may be that tests perceived to be useful are those which relate most directly to the types of difficulties students have.

REFERENCES

Alley, G. and Deshler, D. Teaching the Learning Disabled Adolescent: Strategies and Methods. Denver: Love Publishing Company, 1979.

Chomsky, C. After Decoding: What? Language Arts, 1976, 53, 288-96.

Feuerstein, R. Instrumental Enrichment. Baltimore: University Park Press, 1980.

Feuerstein, R. The Dynamic Assessment of Retarded Performers. Baltimore: University Park Press, 1979.

Kiresuk, T. J. and Sherman, R.E. Goal attainment scaling: a general method for evaluating comprehensive community health programs. Community Mental Health Journal, 1968, 4, 443-453.

Scriven, M.S. The Methodology of Evaluation. In R. Stake (Ed.), Curriculum Evaluation: An AERA Monograph Series on Curriculum Evaluation Volume 1. Chicago: Rand-McNally, 1967.

University of Alberta Senate, Report of the Task Force on Children and Others with Learning Disabilities University of Alberta, 1979.

APPENDIX I

PERSONNEL OF THE LEARNING CENTRE

SEPTEMBER, 1983

FTE	(full time equivalent)
1	EXECUTIVE DIRECTOR
1	CLINICAL PSYCHOLOGIST (SECONDED FROM ALBERTA CHILDREN'S HOSPITAL)
1	CLINICAL PSYCHOLOGIST
1	RESEARCH PSYCHOLOGIST
1	SOCIAL WORKER
2	TEACHERS SECONDED FROM THE CALGARY BOARD OF EDUCATION
1	TEACHER SECONDED FROM THE CALGARY CATHOLIC BOARD OF EDUCATION
1½	LANGUAGE PATHOLOGIST
1	RESEARCH ASSISTANT
½	TEACHER
1	EXECUTIVE SECRETARY
1	INTAKE SECRETARY
1	RECEPTIONIST
1/3	ACCOUNTS PAYABLE SECRETARY

Appendix II

Service Procedures

1. Referral

There are two general categories of clients seen by the Learning Centre: regular clients and special consults. Special consults are those clients seen for relatively brief assessment and intervention. The special consult service is provided primarily for the adult learning disabled population. It evolved as it became apparent that adult services needed to take a different form from child services. Regular clients are typically children of school age, who are seen for more extended assessment and treatment.

The referral policy is relatively unrestricted; i.e., referrals can be made by individuals seeking service, parents, teachers or other professionals such as a family physician or social worker. After the initial contact, intake forms are sent to parents or guardians, school personnel, and the family physician. In addition, relevant information from other agencies which have seen the client is collected. Once all the intake information has been received, a priority is assigned to the case. The criteria used to determine the priority are a) the overall needs of the client, b) the suitability of the client for a project which is under investigation at the Learning Centre, and c) the availability of other agencies to provide the required service. In some cases clients have been accepted on the understanding that service would be made available elsewhere in the near future, but that the client would benefit from short term intervention by the Learning Centre.

2. Initial Interview

In the Initial Interview the client along with his/her family (in the case of adolescents and children) are interviewed by two Learning Centre staff. At this time steps are taken to determine if a learning problem exists. First, the problems which led to referral are discussed. Subsequently, an informal assessment of the problem is made, usually by administering one or two standardized tests.

The determination of whether the client requires a Learning Centre assessment depends on whether it can be established that a learning problem is at the root of the child's difficulty. This means that the clinician must be able to exclude other factors which might impede learning such as low general intelligence, specific sensory deficits (e.g., poor vision or hearing) and primary emotional or psychiatric disorders. Above all, it must be clear that the child is not performing in accord with his/her potential. Generally, what one looks for is inconsistency in the pattern of performance (termed the expectation-discrepancy rule by Ross, 1976).

Thus, a learning disabled child might be one who scores above average in non-verbal or performance tasks, but below average in tasks involving verbal ability. Or in spite of average general intelligence, the client may be below average on tasks requiring the utilization of visual-spatial information. Presumably, if a learning problem is due to low general intelligence or emotional upset, then one would expect that functioning would be low across the board. However, the determination of the source of a learning problem is often a very difficult one to make. For example, in some children emotional problems arise as a result of the learning problem. In such individuals it is often not clear whether the learning problem is the cause or result of the emotional disturbance. Further, the presence of attentional difficulties which tend to impede learning in all areas makes it very difficult to strictly apply the expectation-performance discrepancy rule.

In the final analysis it is left to the clinician's judgement to decide whether a learning disability is present. The two Learning Centre staff who are present at each Initial Interview must come to an agreement regarding the presence or absence of a learning problem. No attempts have been made to formally test the reliability or validity of these judgements.

3. Assessment

a. Description of the Assessment Process

If it is suspected at the time of the initial interview that a client has a learning problem, then an assessment of the problem is made. In the first year of the Learning Centre's operation nearly every client seen for assessment was given an extensive assessment regardless of the severity or nature of the learning problem. It soon became clear that this was not an efficient use of staff and client time. The policy has been revised so that at the time of the initial interview a determination is made of the areas of functioning which require attention. Assessment begins with this set of recommendations, but these may be modified by the assessment staff when appropriate.

One staff member has primary responsibility for the assessment, and obtains assistance from other staff when their particular expertise is required. The person in charge of the assessment will usually observe the child in the classroom.

If any of the information gathered at this point (either from the intake forms or the assessment results) indicates the need for medical attention, appropriate action is taken.

At the end of assessment the Learning Centre staff who have seen the child summarize their findings and recommendations in an assessment report. A post assessment conference is held which includes the client and/or the client's parents, classroom teacher(s), visiting teachers or guidance consultants, and two Learning Centre staff. The results of the assessment are discussed, and out of this discussion goals are set for the remedial program, if one is required. At the conference it is also decided if the remedial program should be implemented at the Learning Centre or at another agency.

In the assessment report a time frame for meeting the program recommendations is set. At this suggested date the extent to which the recommendations have been met is evaluated by at least two individuals, usually the client's parents and the client's classroom teacher.

b. Philosophy of Assessment

As indicated in the goals of the Learning Centre, assessment attempts to take into consideration the whole person. In practice, this means that assessment must go beyond narrow academic concerns. The client's learning problem must be seen in the context of the total life situation, including the emotional well-being of the client, particularly in the areas of family and peer relationships. This conception of assessment stems from the increasingly accepted view that one of the most devastating consequences of a learning disability is the erosion of self-concept (Bingham, 1980; Lawrence and Winschel, 1975; Strickland, 1972). Repeated failure often alters the child's view of himself so that he becomes convinced that success at most tasks is no longer possible. The resulting passivity and lack of motivation greatly complicate the remediation of the learning problem. It becomes the task of the clinician to structure tasks and to intervene in such a way that the client can begin to experience success.

This attempt to take the whole person into consideration occurs throughout the assessment process. At each Initial Interview there is at least one Learning Centre staff member present who has had extensive training in family counselling and family therapy. Part of the purpose of the Initial Interview is to determine how the family is coping with the learning problem. If the situation is such that minimal intervention is required, then the Learning Centre staff may make some suggestions to help the family deal more effectively with the child. If more extensive assessment of a family is required, the staff may recommend additional sessions with the whole family present.

c. Dynamic Assessment

At the time that the Learning Centre accepted its first referrals, the cornerstone of the assessment process was the standardized test. Basically, these tests were of two types: achievement and processing. The achievement tests attempted to examine the level of skill in specific areas such as reading, spelling and mathematics. The processing tests attempted to examine the underlying components of learning such as visual and auditory memory, discrimination, and certain thinking skills. Examiners administered these tests in a standardized manner on the assumption that under these conditions the norms supplied with the test would permit a reasonable interpretation of the client's performance. In this framework, examiners occasionally did additional testing during assessment, but only to confirm or disconfirm the standardized test results.

Recently, the standardized approach has been challenged by a more dynamic approach to assessment. In particular, in the past few years assessment at the Learning Centre has been heavily influenced by Feuerstein's (1979) Learning Potential Assessment Device (LPAD). Dynamic assessment procedures differ from standardized assessment in several fundamental ways. First, in dynamic assessment there is much less emphasis on the product of past learning and more on the process of learning. Second, in dynamic assessment, fundamental alterations in the test situation are made. Instead of assuming the passive role of a test administrator, the examiner assumes an active role in a test-teach-test situation, actively instructing the examinee, providing feedback about success and failure and the reasons for both, encouraging the examinee and tailoring the test situation to the examinee's needs. An important role of the examiner is to establish empathy so that learning can occur and to change the examinee's attitude from one of resistance to a positive working attitude. In contrast to the more traditional methods of assessment in which the emphasis is on standardization of procedures, the thrust of the dynamic approach to assessment is to create the most optimal context for learning. The reasoning behind this is that only under such conditions will one obtain a true picture of the client's potential.

The position taken at the Learning Centre is that either of these approaches to assessment can be very useful depending on the situation. Standardized test scores are important if comparison with other children in a grade is needed. However, knowledge of a a client's current level of achievement, may not provide the type of information needed to plan an effective remedial program. By permitting the examiner the flexibility of altering the testing situation to suit the client's needs, the dynamic approach may provide more useful information for remedial planning.

At the present time the dynamic approach remains controversial. Many fundamental questions remain regarding its use. For example, it is not known if dynamic approaches clearly distinguish learning disabled children from other children with learning problems or if different LPAD examiners can reliably discern the pattern of deficient cognitive functions in an individual.

In summary, both standardized and dynamic approaches are used at the Learning Centre. It is anticipated that in the coming years the Learning Centre will continue to use and investigate both standardized and dynamic testing methods.

4. Treatment

There are a number of categories of treatment programs at the Learning Centre. Some are research projects with formal evaluation components built in. Others are pilot projects in a development stage. The content of treatment programs usually derives from the needs of clients who have been assessed at the Learning Centre. For example, when it became apparent that there were many adolescents who needed social skills training, appropriate programs were developed to suit their needs. Treatment programs without a research focus are offered for individuals and families in crisis situations. The treatment programs evaluated in this report will focus on pilot projects and clients taken under crisis conditions. The formal research projects will be the subject matter of other reports.

Most of the treatment programs at the Centre include an individual component and a group component. All programs are conducted part-time, with most clients attending school full-time. Typically a client comes to the Centre at least four hours per week (two hours per day, two days per week).

The remedial program is based on the recommendations made in the assessment report. Depending on the nature of the recommendations in the assessment report, treatment is carried out in a one-to-one or group format or both. Descriptions of the treatment programs evaluated in this report may be found in the results section.

5. Follow-up

No treatment program is complete without some attempt to transfer the newly acquired skills outside the treatment context. For most clients of the Learning Centre, transfer is aimed at the classroom situation. However, for a substantial number of clients, especially adolescents, transfer is attempted to a non-academic setting. For example, if the focus of a remedial program has been communication skills, then the transfer context may be a job interview, or recreational activity.

The nature of the follow-up program takes a number of forms depending on the client's needs. In some cases a client leaves the Centre because the school system has provided an appropriate program. In such a case the role of the Centre staff is to consult with the teachers in the school, with the client and the parents of the client. Also, periodic reassessments may be made to monitor the client's progress. In other cases a client may no longer need the assistance of professional staff, but still need some one-to-one assistance. In this case The Learning Centre staff trains a volunteer to work with the client in school under the supervision of themselves and the teacher.

Appendix III

TO BE COMPLETED BY PARENT/GUARDIAN OR ADULT CLIENT:

Academic/Behaviour Checklist

Instructions:

In this section we would like you to rate both the client's behavior and academic abilities. In making these ratings we would like you to compare the client with other people you know of the same age.

If you have insufficient information to answer a question, do not circle any of the alternatives.

1. PLEASE INDICATE THE CLIENT'S CURRENT LEVEL OF FUNCTIONING.

Use the following code in making your ratings:

1. SEVERE PROBLEM: the client shows a severe deficit in this area compared to other people his/her age.
2. MINOR PROBLEM: The client has some difficulty in this area as compared to other people his/her age.
3. NO PROBLEM: The client has no difficulty in this area; i.e., he/she is average with respect to other people his/her age.
4. STRONG: The client is slightly ahead of other people his/her age.
5. VERY STRONG: The client is considerably ahead of other people his/her age.

	SEVERE PROBLEM	MINOR PROBLEM	NO PROBLEM	STRONG	VERY STRONG	Do not write in this column
Reading	1	2	3	4	5	30___
Spelling	1	2	3	4	5	31___
Math	1	2	3	4	5	32___
Handwriting	1	2	3	4	5	33___
Written Language Skills	1	2	3	4	5	34___
Oral Language Skills	1	2	3	4	5	35___
Listening	1	2	3	4	5	36___
Physical Activities	1	2	3	4	5	37___
Arts and Crafts	1	2	3	4	5	38___
Peer Relations	1	2	3	4	5	39___
Relations with Teachers	1	2	3	4	5	40___
Self-Esteem	1	2	3	4	5	41___
Organizational Skills	1	2	3	4	5	42___
Attention Span	1	2	3	4	5	43___
Motivation	1	2	3	4	5	44___
Overactivity/ Restlessness	1	2	3			45___
Impulsivity	1	2	3			46___
Disruptiveness	1	2	3			47___
Fidgeting	1	2	3			48___
Distractibility	1	2	3			49___
Tendency to Cry Easily	1	2	3			50___
Moodiness	1	2	3			51___
Temper Outbursts	1	2	3			52___

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